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EDITORIAL DEPARTMENT.

INCREASE OF OUR EDITORIAL STAFF.

Beginning with the present issue, the INTERSTATE MEDICAL JOURNAL will be presented to our readers under the editorial management of the above staff. This change has been made with the definite idea of notably improving the value of the publication from a scientific standpoint. To this end, the personnel of the staff has been chosen so that a journal for the general practitioner shall be published containing the impress of the latest advancements in medicine both at home and abroad. Our editors will ever have in mind the needs of the general practitioner.

It will be the constant aim of the entire staff to edit a journal which shall rank among the best of the monthly journals published in this country. The publication is owned and controlled by physicians, and its policy will be untrammelled and free from any influence other than that dictated by a loyal devotion to the best interests of the medical profession.

MEDICAL INTERVIEWS ON THE PRESIDENT'S CASE.

It is deeply deplorable that President McKinley's assassination should have been regarded by many physicians as a pretext for personal exploita-

tion in the form of "interviews" in the daily press. So-called "opinions," based on newspaper accounts, prepared by lay minds for the elucidation of the lay public, can hardly be considered of much value, and when the "opinion" is evidently of secondary importance (to judge from the display type used in printing the doctor's name), the proceeding approaches dangerously near the methods of quackery.

A physician in attendance upon a public man may be justified in issuing a statement to the press, if only to prevent the publication of misleading views evolved from the inner consciousness of the reporter: in such a contingency, however, he should have the consent of the patient or the patient's relatives. Under no circumstances should a consultant or assistant divulge any facts whatsoever; his failure to keep silence can only be regarded as a serious breach of professional secrecy.

THE STAPHYLOCOCCI ENTERITIS OF BREAST-FED INFANTS.

The digestive disturbances of breast-fed infants have been mostly attributed to changes in the secretion of the mother's milk. Elaborate investigations and analyses of human milk have, however, failed to throw light on many of these disturbances. It seems, therefore, a distinct advance to refer many of these cases to infections.

Escherich and his assistant Moro have established that certain forms of diarrhea in breast-fed infants are due to the staphylococcus albus.

The clinical picture is that of an acute enteritis. The onset is sudden, with vomiting and thin serous diarrhea. There is a loss in weight, but usually no fever. The stools are thin, very acid, yellowish in color, and possessing almost the normal odor.

Microscopical examination of the feces reveals the presence of staphylococci in enormous numbers. The origin of these staphylococci has been traced to the lactiferous ducts of the mother.

Moro mentions the interesting experiment in which a healthy infant was placed to the breast of a nurse whose milk contained staphylococci in enormous numbers. The infant became sick one hour after ingesting this milk.

The infrequency of these infections must be attributed in part to a variation in the virulence of the bacteria, but to the greatest extent to the relative number present in the mother's milk. Stagnation of the milk in the ducts leads to a great increase in the number of micro-organisms.

Fortunately the prognosis is very good, the infants recovering rapidly after a few days. This convalescence goes hand in hand with a diminution of the staphylococci in the feces.

The treatment consists in the administration of rice gruel in small quantities every two hours. Breast feeding should be continued. For the pain and excessive diarrhea small doses of opium are indicated.

RING-WORM SCHOOLS.

Fortunately in St. Louis we do not encounter many cases of ring-worm of the scalp. It is here comparatively rare; even the forms of ring-worm which appear upon the non-hairy parts is rare compared to what one sees of these conditions in the east of our country and in Europe.

When the fungus infects the scalp of a child its cure is not a question of days but of months of constant care and clever treatment. Since the researches of Sabourand we know that the small spored variety (*Microsporon Audouini*) is the usual cause of this condition in the scalp.

The spread of the disease is very rapid when it enters a school or children's institution, by the rubbing together of heads or exchange of caps etc. For this reason special schools for these infected children are strongly advocated by Mr. Malcolm Morris, of London, in his third Lane lecture lately delivered in San Francisco. These children are ordered from school and therefore often lose months or years from study before they are readmitted or cured. The first step in this direction was taken by the Metropolitan Asylum Board of London, in the early part of this year, which opened a school at Witham, Essex, in February, for ring-worm infected children. Schools of this kind have also been established in Rome and in other Italian and Belgian cities.

In these crowded centers of Europe, ring-worm and also fevers are very prevalent diseases. Naturally isolation is the first and most essential step in the war against all infectious diseases. But inspection is equally as important, for without it the cases would not be identified.

Although ring-worm is not very prevalent here in the middle West, yet there are many cases of it; enough to warrant a monthly or bi-monthly inspection of the scalps of our school-children by one skilled in the detection of the disease.

CLASSIFICATION OF INTESTINAL BACTERIA.

There is no more pertinent subject in the whole domain of bacteriology than the proper classification of the various bacteria that inhabit the intestinal tract of man. There has been any number of descriptive papers written on the so-called "colon group" of intestinal bacteria. There has been much confusion in the identification of intestinal bacteria, for the reason that some varieties of one species show apparently alternating characteristics with some varieties of other species. Some varieties of the colon bacillus have been isolated by investigators which showed biologic characteristics in no way belonging to the colon family, and yet, for want of some systematic classification of such bacteria, we have been content to call them atypical forms. The experience of bacteriologists in other fields has repeatedly shown the necessity for classification first of all, if order is to be brought out of chaos in identifying different organisms possessing many characteristics in common, but differing on one or two biologic tests.

It is, of course, a matter of ease to identify the various chromogenic, spore-forming intestinal bacteria. *Prima facie* evidence certainly warrants our positive stand in regard to their early identification when we are confronted with a given case for analytical research. It is the non-chromogenic, non-spore-forming varieties which have so far proved the ban to independent workers who have had no definite classification to guide them through the intricacies of identification of intestinal bacteria. Probably the most valuable contribution to the subject of classification of the non-chromogenic, non-spore-forming intestinal bacteria is that given by W. W. Ford, in the *Journal of Medical Research*, Vol. vi., No. 1. The results of bacteriologic examination of the contents of the stomach, duodenum, cecum and rectum, from forty autopsies, furnish the basis for the compilation of this tabulated classification. The different bacteria were carried through neutral agar, neutral broth, litmus milk, potato, blood serum, potassium nitrate broth and sugar solutions, viz.: dextrose, saccharose and lactose. Two main classes were established—acid-producers and alkali-producers. To the acid-producing class belong seven groups, comprising the colon group, the *lactis ærogenes* group, the cloacæ group, four varieties of a group iv., group v., a sixth group (liquifacient group, Eisenberg), and a seventh group. The alkali-producing class show six groups—the Petrusky and Petrusky sub-group, the proteus group of six varieties, and three other groups comprising varieties which differ only in their property to liquefy gelatin, casein and blood serum in different ways and degrees.

This gives us a good working basis upon which we can build up our varieties of non-chromogenic, non-spore-forming bacteria in an intelligent manner. This promises to give us something tangible in our method of thinking in regard to the flora of the intestine of man. There are no new species pointed out by this investigator, nor is it probable that any of the individual varieties classed by him are new discoveries, but it will certainly help to make plain the whole subject of intestinal bacteria. Without his work we would still be in that darkness which has hitherto so effectually prevented one from acquiring a definite idea of what the intestinal bacteria are like; what are colon bacilli and what are not. It is a relief to know that we have done with "atypical forms," and that when we see a given bacterium breaking up saccharose and another breaking up dextrose, we shall recognize that these are different varieties, and not the same bacterium acting "anomalously," as some bacteriologic confreres would have us believe.

ORIGINAL ARTICLES.

A NEW CHLOROFORM-OXYGEN ANESTHESIA.

BY HEINZ WOHLGEMUTH, M. D., of Berlin, Germany.

Translated by H. EHRENFEST, M. D.

The ideal of every surgeon is to induce an anesthesia which as closely as possible resembles natural sleep, and which is sufficiently safe to permit him to concentrate his attention on the operation without fear that the anesthetic may endanger the patient's life or health. He will desire to see his patients recover from the narcosis with a clear sensorium, without any special untoward sequelæ. The anesthetics hitherto employed do not, in any marked degree, conform to these requirements. Gurlt's¹ statistics (1897) show for chloroform alone a mortality of 1:2039; of ether alone, 1:5090; of Billroth's mixture, 1:3870; of bromide of ethyl, 1:5228; of a mixture of ether and chloroform, 1:7594; of pental, 1:213. Rodmann² found that Schleich's mixture (ether, chloroform and petroleum ether) was more dangerous than ether and chloroform. Honigmann³ observed that a mixture of ether and chloroform frequently interfered with respiration. A slight and sometimes severe asphyxia occurred, and in several instances death resulted from arrest of respiration at the beginning of anesthesia. Having in mind these serious conditions, an eminent surgeon said: "The best of my assistants is just good enough to manage the anesthesia."

Other disagreeable symptoms and after-effects of anesthetics—incomplete relaxation, ptyalism, aspiration pneumonia, incontrollable vomiting, subsequent loss of appetite, etc.—need not be specified in detail.

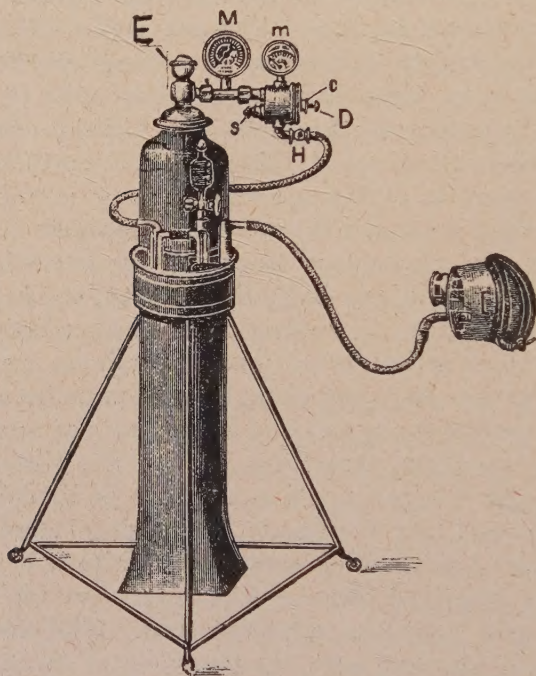
In the following I take the liberty of bringing before the profession a new method of anesthesia, which seems to promise a better fulfillment of the requirements described above. The results so far obtained are remarkably good, and justify an extensive trial. The method is an anesthesia combining chloroform with oxygen.

When first introduced as a therapeutic agent, oxygen was called "vital air." It was regarded as a *panacea* against all disease, and seemed that it fully deserved its new name, judging from the experiments of Morozzo, of Turin (1784), who succeeded in reviving asphyxiated animals by applying oxygen. Thomas Beddoes later advised its use in cases of intoxication by opium and asphyxiation by narcotics. Remarkable results were obtained by a combination of oxygen inhalation and artificial respiration in cases of asphyxia during anesthesia; and thus inhalation of oxygen after narcosis became a routine procedure with many surgeons (Landerer, Prochownik, etc.). Lately Max Michaelis reported splendid results in von Leyden's clinic with the inhalation of oxygen in various forms of dyspnea. It occurred to me therefore to diminish the dangers of

anesthesia by combining oxygen with the anesthetic itself with a view of avoiding asphyxia. After a preliminary experiment on myself I tried the method on two children, both of whom had become twice asphyxiated during previous anesthetics. The results were satisfactory and encouraged me to make further experiments which finally led to the construction of an apparatus herein described.

A steel cylinder contains a 1000 liters of oxygen under a pressure of 100 atmospheres. The gas flows with a reduced pressure of one-tenth to two-tenths of an atmosphere through a U-shaped glass tube (*vide* Figs. 1 and 2). The latter carries on one of the upright arms a little bot-

Fig. 1.



tle (G), from which chloroform is allowed to drip upon a piece of absorbent gauze (B). A cock (J) regulates the flow. Oxygen passing through the tube conveys the vaporized chloroform through a long rubber tube to the mask, which is made of transparent celluloid to permit observation of the patient's face (Fig. 3). The bent tube A, which connects with the rubber tube, may be rotated. The valve V allows the expired air to escape. The oxygen before entering into the mask passes two manometers (M and m.). The larger one, next to the cylinder, indicates the gaseous pressure within the cylinder. The smaller manometer indicates the pressure which is reduced below one atmosphere by means of the screw D. Loosening of this screw diminishes, tightening increases, the

pressure. The chloroform apparatus is placed in a little metal case for protection. The side of the U-shaped tube, which carries the chloroform reservoir, is connected with the oxygen tank, the other with the rubber tube leading to the mask. The following is a description of the mode of application: When the cock E of the cylinder is opened—cock H being closed—the large manometer shows the pressure in the cylinder, and the small one the reduced pressure, which varies according to the position of the screw D. The screw is then adjusted until manometer M shows a pressure of one-tenth to two-tenths of one atmosphere. The cock J of the chloroform apparatus is now turned until it permits the passage of one hundred to two hundred drops a minute. Finally cock H is opened. The handle of the smaller manometer at once indicates zero, and oxygen

Fig. 2.

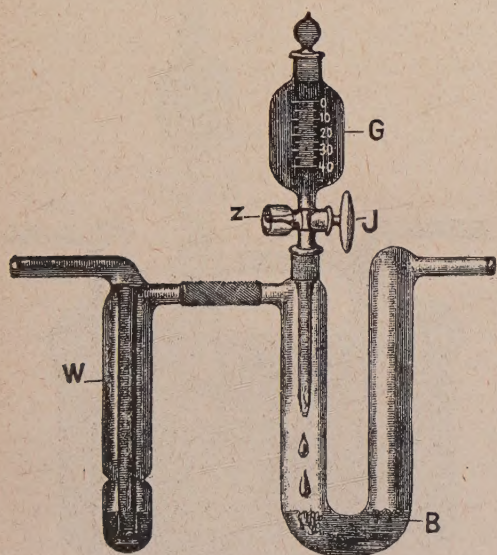
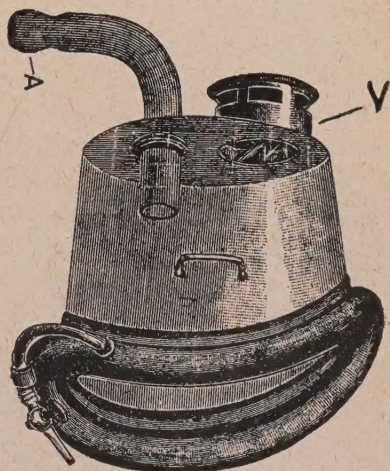


Fig. 3.



issues in continuous stream at a pressure of one-tenth to two-tenths atmosphere. Passing through the U-shaped tube, it becomes charged with chloroform vapor, which in turn is conveyed to the mask. The latter is placed over the face of the patient, who is directed to breathe deeply with the mouth open. From time to time the anesthetizer lifts the mask in order to determine by the odor the amount of the chloroform supply. If the oxygen pressure is too high or too low, the chloroform is not vaporized. In this case the screw D is readjusted by tightening or loosening about one-quarter of a rotation. The amount of chloroform is again estimated by the odor. When anesthesia has begun, the chloroform supply is reduced to thirty to forty drops a minute.

If the anesthesia is profound enough, the cock J is closed, the mask is removed and the cock H shut off in order to save oxygen.

Thus the quantity of chloroform used may, after some experience, be greatly reduced. It should be borne in mind, however, that with this method the patient quickly returns to consciousness on interruption of the anesthetic. The striking effect of this chloroform-oxygen narcosis is manifested in the following symptoms: After several inspirations the skin and visible mucous membranes become light red. Extremely anemic and weak patients exhibit a healthy color, and I observed one case in which a severe icterus was disguised by this cutaneous hyperemia. The pulse becomes slower and fuller, similar to a digitalis pulse, and its rate is nearly always about 60. Narcosis has reached the surgical stage in little children in one quarter of a minute, in larger children and women in three to seven minutes, in men five to twelve minutes. In one case a pulse-rate

Fig. 5.

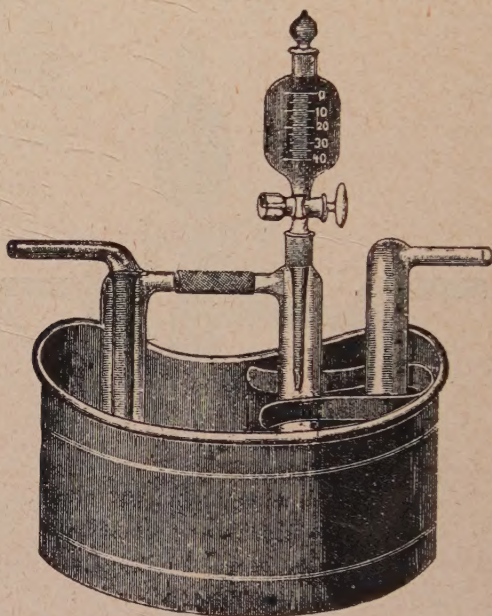
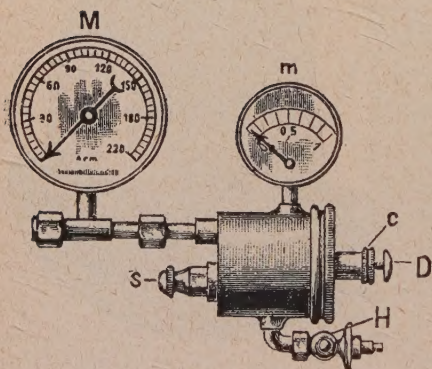


Fig. 4.



of 56, in another of 44, was observed. The rate remains practically unchanged during deep narcosis. An insufficiency in the chloroform supply with a consequent lightening of the anesthesia increases the pulse-rate. The pupillary reaction does not differ from the usual reaction in chloroform narcosis: contracted and inactive during deep anesthesia, dilated and active as the narcosis becomes less profound. Respiration is absolutely uniform, slow and quiet. On account of the abundant supply of oxygen, respiration is comparatively shallow. A stage of excitement is but rarely observed, and then, as in alcoholics, it is short and moderate in degree. Vomiting during and after anesthesia is comparatively rare. There is never an increase of secretion of mucus and saliva. The reduction of the pulse-rate to 60 is typical of this method, the rate being main-

tained whether the patient is young or old, anemic, fat or suffering from arterio-sclerosis or heart failure. The quality of the pulse, inaudible respiration, the rosy appearance of the patient, give the anesthetist a feeling of entire security; one is impressed with the idea that an asphyxia or a paralysis of the heart or respiration is highly improbable. The sensations observed when the patient is awakening are agreeable in character and wholly different from those observed after ordinary chloroform narcosis. The patients stretch themselves and sometimes yawn as on awaking from healthy sleep. They open their eyes and are fully conscious; there is no complaint of headaches or nausea; fits of weeping and hysteria, as often observed after ether narcosis, are absent.

My experience with this form of narcosis comprises, so far, more than three hundred cases. I am fully aware of the fact that this number is too small to permit of broad generalizations. Some of the features observed are, however, so striking that I believe I am justified in bringing now the results of my experience before the profession. Referring to the detailed account of one hundred and eighty anesthetics, published in *Archiv fuer Klin. Chirurgie*, 1901, vol. lxiv., p. 682, I will state here that I never heard a complaint about a feeling of suffocation, never saw a patient who resisted or tried to remove the mask. Cyanosis was observed in but one case, and was caused in this instance by an extreme Trendelenburg position. There never was any irregularity of the pulse. A stage of great excitement occurred in only five cases. Vomiting obtained in twenty per cent. of all the patients; this estimate includes, however, dispensary cases, which, of course, were not especially prepared for anesthesia, and those patients who vomited at the first attempt to ingest liquids or solids. Three patients, each of whom had twice become asphyxiated under ordinary chloroform narcosis, stood the new anesthesia splendidly. In twelve instances a weak, irregular pulse improved during the narcosis. In three cases, where anesthesia was started with chloroform alone, patients became cyanotic, respiration stridulous and stertorous. On the addition of oxygen the respiration became freer, and the patient's face assumed a red-dish tint.

The following observations show the time which elapsed before the patients awoke from the anesthesia: One hundred and sixty-six patients were fully conscious immediately after operation; thirteen required between eight and thirty minutes; one woman, after the use of fifty-five grams of chloroform, slept three hours; twenty-one dispensary patients got off the table and walked home. Kidney irritation was never observed.

I became convinced that the administration of an overdose of chloroform is impossible, even if the U-shaped tube became filled with chloroform. The possibility of an exact regulation of the chloroform afflux, the mixture of chloroform with oxygen, the necessary utilization of all chloroform vapor for the anesthesia itself, enable the anesthetizer to reduce the amount of the chloroform used to a *minimum*. Ten grams of chloroform

were used during an operation of sixty minutes (trepanation of the ulna and resection of the elbow); twenty-nine grams in ninety minutes (echinococcus of the liver); twenty grams in sixty minutes (nephrotomy); nineteen grams in sixty minutes (appendectomy); nine grams in forty-five minutes (gastro-enterostomy).

Regarding the consumption of oxygen and its proportion in the mixture: At a pressure of one-tenth of an atmosphere—which is sufficient for deep inspiration without producing a sense of suffocation—one hundred liters of oxygen, at a pressure of two-tenths atmosphere two hundred liters pass out in one hour. These quantities of oxygen are able to vaporize, as I have proved experimentally, respectively ten or twenty grams of chloroform in an operating room of normal temperature. Thus we have in one liter of the inspired air—namely, mixture of air and oxygen—one-tenth gram chloroform, and after some practice the anesthetizer will find this amount sufficient to keep the patient in deep narcosis. In comparison with the usual consumption of chloroform the amount used is very low. The question has been raised by several authorities whether any excellent results are really due to the use of oxygen, and not rather to the exact dosage of chloroform, and whether the mixture of chloroform with air would not give as good a result. Their views seem to be well supported by physiological experiments made by Lavoisier and Séguin, Regnault and Reiset, and lately by A. Loewy,⁴ which were intended to show that an increase of oxygen in the air does not mean an increased absorption of oxygen by the lungs. A normal healthy individual, whose blood is saturated with oxygen, cannot increase the amount of absorbed oxygen to any noteworthy extent; but the conditions are quite different in an anesthetized individual, who is no longer in a stage of oxygen equilibrium. Max Michaelis showed, however, in a paper read before the Thirty-eighth Congress for Internal Medicine, that these experiments are not wholly applicable even for healthy individuals. He says: "That there is a possibility of an increase of absorbed oxygen in a normal individual could hardly be asserted in a more convincing way than has been done by A. Loewy himself. Although Loewy states in his conclusions that the respiratory quotient is in a large measure independent of the inspired air, and an increase of the oxygen to twice the amount does not influence the absorption of oxygen or the giving off of carbon dioxide, he says at some other place: "*Inspiration of air, rich in oxygen, has a quieting effect. The pulse becomes slower, the breathing rate decreases and the muscles seem to relax.*" And this statement is of the greatest importance for the question in view. If there is a favorable influence of air, rich in oxygen, in a healthy individual, a still better one should be expected in cases in which air, deficient in oxygen, is inspired, and when symptoms of asphyxiation are evident. As I have shown at another place,⁵ it is not the increase of carbon dioxide, but the scarcity of oxygen, which produces dyspnea.

I may be permitted to add just one more argument which shows the

dangerous effect of chloroform and the great advantage of administration of oxygen. It is a well-known fact that the oxygen of the blood is bound to the hemoglobin of the red blood corpuscles, and that this combination is easily dissolved. The oxygen can readily be displaced by carbon oxide or nitrogen. Experiments made by Boettcher⁶ have established the fact that chloroform not only displaces the oxygen in hemoglobin, but entirely destroys the latter; it is even capable of dissolving the stroma of the corpuscles. A sufficient proof that the toxic effect of chloroform is principally produced by a scarcity of oxygen and that the efficacy of the administration of oxygen, which proved so satisfactory in all my narcoses so far, can easily be explained from a physiological standpoint.

Thus I once more wish to call the attention of the profession to this new method of narcosis. I hope that extensive trial will establish the fact that the chloroform-oxygen anesthesia will continue its promise of being a satisfactory narcosis.*

*The translator will shortly be in possession of a Wohlgenuth apparatus, and will take pleasure in reporting his results in this journal.

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⁶ Mentioned in Hermann's Text-Book of Physiology.

A CRITICAL REVIEW OF SOME RECENT LITERATURE ON THE PATHOLOGY OF TABES DORSALIS.†

BY SIDNEY I. SCHWAB, M. D., of St. Louis, Missouri.

The impulse to write a paper with the above title came from the reading of a very interesting and suggestive article by Jules Soury, entitled "Revue Critique—Anatomie et physiologie pathologiques du Tabes," which appeared in the *Archives de Neurologie*, January and February, 1901.

It seemed to me that it might be of some interest to go over the literature which has appeared during the last three years on this subject and see what relation the mass of work bears to the prevailing theories in regard to the problem of pathology involved in tabes dorsalis. In this way it might be possible to see the trend of recent thought and to find out which of the existing theories is strengthened or weakened by recent contributions to the subject. As a result a prediction might be ventured upon as to the probable solution of this puzzling and fascinating problem. That the literature of the past three years has brought neither a solution, nor even an indication in what direction the final solution will lie, is not to be wondered at in view of the complexity of the problem involved. Although the object of this paper, therefore, has not been achieved, yet a brief *resume* of what has been done will be of some interest.

† Read before the St. Louis Medical Science Club, April, 1901.

To a great many the pathology of tabes seems simple enough. It amounts merely to a consideration of a wedge-shaped area of degeneration, known as sclerosis, in the posterior columns of the cord. These columns being sensory in function, the symptoms found in tabes would naturally be of the same order. If an individual holding this idea were given a series of microscopic sections from various levels of a tabetic cord, he would find that his classic idea of the pathological appearances in tabes would be rudely shaken. The areas of degeneration are unlike in different parts of the cord, and in some portions of the field normal areas are always found, and, sad to say, he would very soon discover that pathology refuses to adhere to the geometrical concept of his pathological triangle. After a little while the conclusion would be forced upon him that he is dealing with a very complex problem, a problem which has busied some of the best medical minds the world over.

It is very likely that if a solution of the pathology and pathogenesis of tabes should be discovered, it would carry with it an explanation of some of the most intricate problems which the neurologist and the physiologist are now working upon. Such a solution might be of greater import than this, and might realize the stirring words which Marie put at the head of his "Lecons sur les Maladies de la Moelle:" "Hereux ceux qui croient qu'il est en médecine des questions sur lesquelles la Science est faite et quele Tabes est celles là." (Fortunate are they who believe that there are problems in medicine upon which science rests, and that tabes is one of them.) I have attempted merely to go over the literature from 1898 to the present time, as previous to that Spiller's article in the *International Medical Magazine*, and Redlich's¹ and Philippe's² monographs thoroughly cover the ground. It must be said that the number of articles have not been very large and their average quality not very high, two facts which make the task of the reviewer easier and give him a wider latitude for theoretical discussion. It is unnecessary perhaps to say that I do not propose to analyze every paper which has appeared since 1898, but I have selected some seven or eight for discussion which have seemed to me the most interesting and important. In order to make what follows clear to you, a short description of the posterior columns of the cord and the anatomical elements involved in the question will be given.

The sensory system of the cord must be thought of as of two kinds, an endogenous and an exogenous, the former having its cells of origin within the cord, the latter outside the cord in the cells of the posterior root ganglion. The exogenous system is the most important in tabes. Each fiber has its origin in a cell of the posterior root ganglion. This cell is unipolar in type, though embryologically bipolar. Arising from this cell is an axis cylinder which divides into two branches, the so-called T-branching. One of these branches, after becoming myelinated, follows the spinal nerve as a mixed nerve and goes to the periphery; the other goes toward the cord, forming a fiber of the posterior nerve root. It reaches

the cord at the posterior-lateral sulcus and enters it there, forming an entering zone or Lissauer's marginal zone. The fibers of the posterior root are of two kinds, the terminations of which within the cord are entirely different.³ The external root, composed of fine fibers, bifurcates into an ascending and descending branch soon after entering the cord, and after a short course ends in arborizations about the cells of the posterior horns. The internal group, composed of thicker calibered fibers, forms the internal third of Lissauer's zone and divides likewise into a short descending branch and a longer ascending branch. This longer branch is composed of long, short, and medium fibers, the longer ones going straight up the cord, where they end by arborizations in the nucleus of Gall or Burdach in the medulla. The long fibers show a constant tendency to approach the middle part of the cord, giving place to or crowded, as it were, by the constantly increasing number of entering fibers. It follows then that as we approach the cervical part of the cord, the column of Gall is practically composed of the long axis cylinders of the neurones originating much lower down. The ganglion cell, the peripheral branch, the posterior root fiber, its intramedullary continuation and its end-brush is called the centripetal sensory protoneurone. The endogenous fibers are derived from the Clark cells and the cells of the posterior horns; they are of both an ascending and descending type and occupy the topographical position seen in the undegenerated portion of a tabetic sclerosis in the early stage of the disease. They play, in all probability, an unimportant role in the pathology of tabes.

There are a number of theories in regard to the pathogenesis of tabes, which have become more or less fixed in the literature. These represent widely different conceptions of the disease, and each of them, at present, has a certain significance. There is scarcely any part of the sensory protoneurone which has not been fixed upon as the origin of the disease, and before going into a discussion of the literature, these various theories will be briefly described. First, the theory of Leyden: the so-called neuritic theory. This theory assumes that the origin of the tabetic process is to be found in the peripheral nerves, as the nerves here are exposed to the greatest amount of possible damage, cold, trauma, etc. The changes in the cord are secondary. Second, the parenchymatous theory: the spinal ganglion is assumed to be the origin of the tabetic process. This theory was formulated by Babinsky in 1890. Marie was its chief supporter. Third, as a further development of Leyden's theory before referred to, is the theory of the posterior root origin of tabes. Dejerine is probably the chiefest advocate of this hypothesis. Fourth, the meningeal theory. Gall was the first advocate of this idea. This theory assumes the presence of a meningitis, involving the posterior nerve roots, compressing them, and thus causes an ascending degeneration of the fibers within the cord. Recently there has been a tendency to regard tabes not as a disease of the cord *per se*, but as a diseased condition of the whole sensory system.

In regard to the general conception of the disease there are two main tendencies to be observed: first, that tabes is a system disease, in Strumpel's sense, and second that it is a segmental disease, progressing from segment to segment of the cord.

In considering the more recent literature on the pathology of tabes, it is clearly evident that the greatest weight has been laid upon the study of the cells in the posterior root ganglion. This is easily understood when it is remembered that the cell itself is the functional center of the sensory protoneurone, and a lesion here would produce, in a theoretical sense at least, the changes, or some of them, which are commonly met with in a tabetic cord. The impulse given to the study of the nerve cell by the Nissl method and its modifications helps also to explain why the nerve cell should be taken as the most favorable point of study for the solution of the problem. Karl Schaffer⁴ gives a short review of the work done on this subject, and bases his observations on Lehnossek's notable work, "Ueber den Bau des Spinalganglion zelle des Menschen." Three cases were examined by the author, and his conclusions are as follows: In general my examination of the ganglion by Nissl method gave the very surprising result that definite pathological nerve cells were not found to be present. The chromatic substance showed no important alteration. In cases where the posterior roots showed the most complete degeneration, the nerve cells showed their normal forms. Regarding then chromatolysis as an anatomical index of disturbed cell vitality, we are forced to the conclusion that the initial lesion of tabes must be situated outside of the ganglion cells. Marinesco,⁵ in 1895, examined by the Nissl method the spinal ganglion in two cases of tabes associated with dementia paralytica. He found then such slight changes in the nerve cells that he was inclined to regard the matter as unsettled. Subsequently, in addition to these two cases, he examined nine more by means of the latest technique. This series of eleven cases represents the most extensive work, by far, on the study of the ganglion cells in tabes. These are his conclusions: In almost all of the cases I have found slight changes of one kind and another: disintegration of chromotophylic elements, pallor and disappearance of the granules, etc., rarely atrophy of the cells. These lesions are evidently not the sole result of the tabetic process, and I refuse to admit that they are the cause of the degeneration in the posterior columns. I do not mean to deny that the degeneration of the posterior roots can cause some slight modification in the cells of the spinal ganglion, but I think that their modifications are of a different nature from what I have found, and I attribute them rather to the very great vulnerability of the cells themselves toward different morbid influences.

In view of the recognized authority of this author, these findings must be accepted as final, as far as our present means of investigation go, and it must be regretfully admitted that the parenchymatous origin of tabes does not stand the test of careful study. This negative conclusion is

further strengthened by the remarks of P. Marie upon this paper. He spoke as follows: "Several years ago I thought, with others, that the initial lesion of tabes might be localized in the spinal ganglion. At that time this was theoretical conception, and I am forced to recognize that facts have not confirmed this view. In all the autopsies in tabetics which I have made since then I have never found lesions in the spinal ganglion. I have consequently abandoned my early view, and I am in accord with Marenesco. Although I have been forced to give up my first idea, I have unfortunately not been able to replace it by another, and I must confess at present that I am incapable of saying where the primary lesion of tabes is located."

After this there is nothing much to be said on this theory, and in the present state of our knowledge the spinal ganglion must be placed outside of any definite organic pathological influence in tabes. Furthermore it is scarcely necessary to mention a great objection to the cell origin of tabes, an objection that is purely theoretical, it is true; it is this: you may remember that the posterior root ganglia are unipolar, and that the peripheral and posterior root branch are merely divisions of one axis cylinder. It is reasonable to assume that a lesion situated in the cell itself, capable of causing a degeneration of the portion going to the cord, would of necessity cause a like degeneration in the peripheral branch, because the cell is the nutritional center of the whole neurone. While a degeneration of the posterior root fibers is practically always found in tabes, a degeneration of the peripheral branch is seldom found. This fact alone, to say nothing of the opinions before alluded to, forces us to seek elsewhere than in the initial lesion of the tabetic process. Before passing on to a consideration of the next two papers, brief notes only of which are at my disposal, some words concerning the meningitic theory of tabes, and particularly its special application by Nageotte, may be of interest. According to this writer, the posterior root, before its entrance into the spinal ganglion, receives a sheath from the dura and from the pia arachnoid. At this place he found in tabes certain changes which he called transverse interstitial neuritis. This alteration, which he found in the anterior roots as well, consisted of a cell infiltration which involved the dura and arachnoid of the posterior roots. At a late stage a pseudo membrane is formed with a thickening of the meninges. This interstitial neuritis Nageotte announced as a constant finding in tabes and as a cause of the posterior column degeneration. He has contributed to the support of this theory the following:⁶ A case very favorable for study on account of the age of the lesion was examined and confirmed his hypothesis as above stated, and he showed a very exact relation to exist between the parenchymatous lesion of the roots and the interstitial lesions which characterize transverse root neuritis. This very vague account is all that I have been able to obtain in regard to this case, but in a further contribution⁷ there is a rather more extended account of the application

of his theory to the pathogenesis of tabes. This neuritis affects the two roots, the anterior and posterior, in different ways. The posterior degenerates in its extremity and in its collaterals; the anterior, more resistant, does not suffer at all, or very slightly. The localization of this inflammatory lesion upon the root nerve is explained by the disposition of the lymphatic sheath which is directly continuous with the subarachnoid space. From these facts the author concludes that the systematization of tabes results from two absolutely distinct factors, first, from the disposition of the lymphatic apparatus, which permits the morbid agent to attack successfully the roots at a determinate point; second, owing to the pathological peculiarity of the neurones of the posterior roots, they degenerate progressively under the influence of this localized attack, while the anterior roots are either resistant or, having succumbed, show a tendency to repair in spite of the further progress of the disease. In another paper⁵ by this same author, he describes a peculiar variety of meningeal infiltration by means of myelinated fibers coming from the anterior root, which he believes are found more frequently involved in tabes than is commonly supposed.

In this same connection a paper by Chretien and Thomas⁹ is of great interest. It relates to two cases of tabes which were especially characterized by a remarkable and rapid development of muscular atrophy. The post-mortem examination gave a sufficient explanation for this phenomenon. In addition to the sclerosis of the posterior column, changes in the cells of the anterior horns were found in the lumbar-sacral region, and in addition a peripheral neuritis was demonstrated.

From these reports there is to be noted—leaving aside for the moment the correctness of Nageotte's assumption of the existence of a transverse neuritis and the existence of a degeneration in the anterior roots—that a few cases of muscular atrophy in tabes have been puzzling questions to neuro-pathology. This tends toward a wider conception of the pathological process involved, and seems to support some of the more recent theories that tabes is not a disease which is limited to any one system of neurones, but involves the whole of the nervous system. Concerning the more specific hypothesis of Nageotte, the conclusion of Redlich¹⁰ remains true at the present time. Both he and Obersteiner studied several tabetic cords to test this point, and found no satisfactory evidence of its presence; and Redlich believes that the finding of Nageotte cannot explain the tabetic process, but possibly may cause an intensification of the degeneration of the roots.

Quite a different aspect of the question is found in the paper by Roux.¹¹ His work is based upon the study of seven tabetics in Dejerine's clinic. In the cervical, dorsal and splanchnic sympathetic he found that almost half of the smaller myelinated fibers had disappeared, while the large fibers remained intact. The large fibers arise from the ganglion, and as these ganglia are intact in tabes it is natural that the fibers arising

from them should likewise be intact. As a check on this finding the sympathetic systems of ten individuals who had died of various diseases other than tabes were examined, and no changes similar to these were found. It seems a legitimate conclusion, then, that this is a special pathological condition of tabes. Any sort of final judgment in respect to the conclusions of this paper must be reserved until our knowledge of the anatomy and physiology of the sympathetic system is improved.

In regard to the question whether tabes is a disease not limited to the cord, but involving the nervous system as a whole, a question which Nageotte's work would seem to advance, a paper by Epstein¹² is of some significance. The portion of his paper which is interesting in this connection is that which has to do with the *role* of the tangential fibers of the cortex in tabes. As is well known to you, the disappearance of this layer is almost pathognomonic of dementia paralytica, and is found in those cases of tabes which later develop symptoms of this disease. Three brains were studied by Epstein—one from a tabetic, uncomplicated; one of a dementia paralytica with tabes, and one of dementia paralytica alone. In all three an atrophy of the myelinated fibers in the tangential layer was found, which was most pronounced in the dementia, and least of all in the pure tabes. Moreover, the atrophy in the tabes was less regular in distribution and showed more of a tendency to involve the other layers of the cortex than the other two. Colellea¹³ has suggested a very ingenious reason for the psychical disturbances sometimes observed in cases of tabes. He likewise believes that a neuritis of the anterior roots exists without any pathological conditions of the anterior horn cells. He finds a reason for the psychical disturbances which are of the type of ideas of persecution and dementia in the fact that the sensory system, being disturbed in function, brings false impressions to the sensorium from the outer world. This sensory disturbance may be located in the peripheral nerves, the cord, the brain stem, in the parieto-occipital or frontal lobe.

Laspeyres¹⁴ examined the whole nervous system in a case of tabes which was complicated with necrosis of the jaw. In addition to the typical changes in the cord, he found a wide-spread involvement of the pia arachnoid and its blood-vessels. An endarteritis obliterans extended to the medulla. Further, he found both ganglia Gasserei infiltrated with round cells in the interstitial substance. This, according to him, explains the extensive necrosis of the jaw. The trigeminal nuclei in the medulla, as well as in the cord, were normal.

Though these articles by no means exhaust the literature of the pathology of tabes since 1898, yet they appear to me to be the most significant and to bear more upon the problem which has been before us. They present a pretty wide field for thought, and while they cannot be said to settle the question in any sense, yet they would seem to indicate two general lines of progress: First and most important is that the conception of tabes must be made a much broader one than was formerly thought essen-

tial; the second is that no division of the sensory system, if we are to consider this system as the sole one involved in the tabetic process, can be regarded with certainty as of particular importance in the initial location of this process. Now that it is pretty well proven that the cells of the posterior ganglia are not primarily involved in the process, the most logical seat for the initial lesion must, by a process of exclusion, be in the posterior nerve roots. Its location there, anatomically at least, explains more satisfactorily the changes found in the cord, at least in the early stages, than any other hypothesis. The existence of a neuritis there due to a meningeal pressure is certainly not proven, and it must be acknowledged that we are quite unable to say what the nature of the process is. Granting that the process starts here, its progress upwards is best explained by a gradual segmental involvement of the cord, by which is meant that each series of posterior roots is successively attacked, starting from the lumbar region. With the further progress of the disease the endogenous fibers of the cord become involved to a varying extent, explaining the changes found in Clark's column and in the cells of the posterior horns and the fibers arising from them. With this wide-spread distribution of the sensory protoneurones, the rest of the nervous system, including the motor as well (and it must be remembered that the whole nervous system is in intimate connection with it), is functionally affected and responds easily to any process, pathological in nature, which the normal nervous system could easily overcome.

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SOME OBSCURE INJURIES FOLLOWING THE TOXIC USE OF ALCOHOL.

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There are many serious organic diseases which are traceable to syphilitic infections, to heat and sun-strokes, and also to brain-shocks, concussions or injuries from falls, and blows on the head.

Sometimes the connection between these causes and the serious diseases which follow is very clear and can be traced in a continuous line of symptoms. In other cases it is obscure, with breaks in the history, and yet these causes as the starting-point of many grave diseases which follow cannot be mistaken.

Alcoholic intoxication is the first cause of many equally serious diseases and neuro-psychoses, although this fact is largely unknown and unrecognized by the profession.

The familiarity with intoxication and the delusive theories of moral causation have repelled most efforts to study the pathology and psychology of this form of poisoning; hence the etiology of delirious delusional alcoholics on the streets and in the station-houses are literally more obscure and unknown than the etiology of yellow fever or the plague.

In this new study of the subject I will confine myself to the conditions which are traceable to the first toxic action of alcohol.

This may be divided into two classes:

First.—The direct injuries which follow from alcoholic poisoning.

Second.—The psychoses following this state manifest in the alcoholic craze and inebriety which follows.

As an example of the first form of injury, the following instance is an illustration:

Many years ago I was called to see a physician whose intoxication was so profound as to be alarming. He had attended a supper at a medical society with some friends, and drank several kinds of wine. This was his first intoxication. He had been a total abstainer up to this time, and both the taste and smell of spirits were particularly unpleasant. All his habits of life and living had been regular. He was considered a strong, healthy man, and had never been ill. He recovered the next day and went home. The only change observed was extreme paleness.

Several years later he consulted me and gave the following history: After this first intoxication he became anemic; had attacks of nervous dyspepia; could not eat certain foods. Any overexertion or break in the regularity of his habits of sleeping or eating was followed by extreme exhaustion. Attacks of insomnia and headache followed; and his ordinary practice was a burden, only done with great mental effort.

He was filled with morbid fears of fatal mistakes and loss of reputa-

tion. He had been abroad six months and returned no better. All the physicians he had consulted had diagnosed neurasthenia with possible incipient dementia, and advised change and rest. He was morbidly introspective, and was alarmed at the possibility of oncoming malignant disease of the stomach. He had grown thin and was anemic, and though at times he slept and ate well, yet indigestion and insomnia would follow. Various functional disorders frightened him so seriously that he would go to bed for days at a time, then get up and appear well again, and attend to business with pleasant ease. Later he was obliged to give up surgery for fear of making mistakes, and seemed to have at times doubts of the correctness of his judgment, and gave unusual care and attention to confirm his opinions. This neuro-psychopathic state continued for two years, ending in sudden death from what was called angina pectoris. He asserted that his condition dated from the injury following the first intoxication.

The second example was also a physician of forty years of age, temperate and in vigorous health. He had never been sick, and had taken unusual care of himself. His ancestors were healthy, long-lived people, and there were no hereditary diseases in the family. He passed a rigid examination for a large life insurance a week before he was first intoxicated. Previously he had never used spirits or tobacco, both from principle and from disgust with the odor and taste of these drugs.

He attended a banquet in a neighboring city, and to the surprise of his friends, when urged, drank freely of wine and champagne. He returned to his home in a semi-delirious state, and later became stupid and remained in bed for three days. Then he recovered and went about his usual work. From this time his manner changed. His former cheerfulness merged into silence and reserve. He seldom laughed, and seemed absorbed in some mental study. He complained of insomnia, and seemed very anxious about foods and baths for himself. Six months later he was anemic, and walked as if partially palsied. His sleep and digestion were impaired. He made no complaint, went about as usual, and when asked to explain his condition, treated it lightly as some obscure nerve exhaustion. The next year hypersensitive states appeared. He complained of cold and sudden heat, and began to express fears of sudden death, and thought the condition malarial; took large quantities of quinine and antimalarial drugs. His mental condition changed. He was suspicious and irritable, and talked loudly at times, and at other times would be reserved and seemed afraid to speak. He consulted a number of physicians, who diagnosed brain exhaustion, and advised change and rest. He spent a year traveling and came back worse, and a year later died suddenly of some sudden palsy. A post-mortem revealed nothing that would explain the cause of death.

The third example was that of a clergyman thirty years of age, in charge of a large church. He was a strong, athletic man, temperate, and had never used spirits or tobacco. There was no history of hereditary

disease in his family, and he had never been sick. He was chilled from services at a funeral in a country cemetery, and given a large glass of cider brandy for warmth. This diminished the muscular power of his legs so that he spent the night at a friend's house. For other symptoms hot whisky was given, and he was considered ill for two days before he could return home. From this time he became a nervous invalid. First, nutrition was disturbed. Food disagreed with him. Then insomnia and heart palpitation followed. Influenza, malaria and various forms of neurasthenia were diagnosed. Rheumatism and stiffness of the joints succeeded. Then his mind became feeble, and emotional changes followed, until two years later he resigned his charge, and is now an invalid, unable to walk or bear any strain of mind or body.

The fourth example was that of a mechanic, forty-six years of age. He was a perfectly temperate man, never using spirits or tobacco, living in good surroundings, and was regular in work, eating and sleeping. After a fortunate sale of a patent in a distant city he was persuaded to drink with some friends, and suddenly became intoxicated. He remained in bed twenty-four hours, then returned home and called the family physician, and was supposed to have an acute attack of indigestion. From this time he was an invalid, and appeared to be suffering from some obscure neurosis, with swellings of the joints, and general nervous exhaustion. Five years later he gave up business, and is now going the rounds of sanitariums for relief from paroxysmal pain and nameless functional and organic disorders.

These examples are given as marked types of neuro-psychoses and psychopathies which are traceable and began with the first profound intoxication from spirits.

In these instances an aversion to all use of spirits followed the first intoxication. No spirits were taken before this event, and there was a general impression that intoxication was the first cause of the disorders which followed. There was no hereditary history in these cases, and all the facts pointed to the first poison of alcohol as the active and exciting cause.

In two similar instances occurring recently, where an accidental intoxication was the starting-point of serious and finally fatal neurosis, marked by sclerosis and palsies, there was a history of previous hereditary psychopathies. It was evident that intoxication acted as exciting cause, rousing up a latent tendency to disease which continued to a fatal termination.

The second clinical phase of this subject is the psychosis following the first intoxication, breaking out later in some form of inebriety, which is literally a symptom of the previous degeneration or injury. I have found a number of less prominent examples where neuroses appeared soon after the first toxic poisoning from alcohol that was supposed to be due to influenza. Thus, soon after the first intoxication, symptoms of in-

fluenza came on, and a long, distressing sequelæ of obscure diseases followed, ending fatally.

Malaria, rheumatism and other symptoms of disease seemed to start from this point, although ascribed to other and insignificant causes. The evidence that alcoholic poisoning was the specific cause, was due to the fact that symptoms of functional and organic changes began soon after the intoxication, and also that there were no facts in the previous history which indicated these changes.

I have seen four cases of persons who used wine and beer in great moderation during periods of from two to six years, then suddenly they became profoundly intoxicated; recovered, and were total abstainers ever after.

Dating from a first acute alcoholic poisoning, various and most complex neuroses appeared, and diseases which were obscure and very difficult to diagnose and to treat followed, ending fatally in a short time. The specific cause, alcoholic poisoning, was not recognized, nor the preliminary period of moderate drinking considered as a predisposing factor in the cases.

In my studies of a large number of both alcohol, opium and other inebriates, a certain proportion of instances have a history of one early, profound intoxication, and then, after years of abstinence, they merged into a continuous addiction to spirits or some narcotic drugs. An interval of years may have passed from the time of the first intoxication, during which they were total abstainers, and in some instances promoters of the cause of temperance. Then suddenly, without apparent cause, they became addicted to the use of spirits and drugs. The mental symptoms in such instances are often so prominent as to suggest a long preliminary state of degenerative changes dating from the first intoxication.

The remark of friends and near associates that such persons were always queer and peculiar in their thoughts and habits is a confirmation of the expectation that neurotic changes had been going on long before the break-down.

The following is an example under my care: A young man of good health and family history became profoundly intoxicated on his graduation from a law school. For ten years he was a hard-working, temperate man, and although successful, was eccentric. He would suddenly stop business, go to bed and abstain from food for two or more days, claiming to be exhausted and threatened with congestion of the brain. The family physician considered it largely hysteria, and could find no tangible cause. Both in his business and in regard to himself he was erratic and changeable in his plans, and spent much time reading books of health. Suddenly he began to use spirits daily, and soon became an inebriate. There was doubtless a connection between the first intoxication and the inebriety years after. This was evident in the neurotic symptoms and changes during this period.

Persons who become neurotics in the best conditions and surroundings of life and then unexpectedly drink or take drugs to great excess are often found to have a history of some early profound intoxication with slow recovery. These instances are unrecognized, but can be traced in many cases; and the connection between the first intoxication and the later stages can be established without much doubt.

A leading business man became intoxicated at a wedding for the first time in his life, never having used spirits before. He was sick for a week, then recovered. From this time he was conscious of increased nervousness, loss of power of attention, was fearful, and worried about matters which previously gave him no concern. He described his symptoms by the phrase that "he had lost his nerve" and could not control himself as in former times. He complained of weakness and a disinclination to either think or act, and said it all dated from the intoxication at the wedding. This increased until a year later hemiplegia appeared. Two years afterward he died of some acute disease. The interval between the first toxic poisoning was marked by distinct symptoms of both mental and physical changes and fatal break-down which have not received any study so far.

Many persons become intoxicated at long, irregular intervals, depending on some unknown causes; and while there are no pronounced symptoms of neuro-psychical disease which attract attention, there are often symptoms of debility and weakness which are overlooked. Such persons suffer from organic and functional disorders and acute diseases that are ascribed to other causes. Neuritis and obscure forms of so-called rheumatisms are common. An instance occurred recently of a physician who was seized with what was called an attack of rheumatism, and after a few hours of acute pain died. It appeared that for the past five years he had been intoxicated at least six times, and on each occasion suffered from severe pains in the legs and severe heart depression. The last intoxication was four days before death, and he was out as usual attending to business the day after drinking. No doubt there was some connection between the alcoholic poisoning and the death which was not recognized.

It may be stated as a fact that every intoxication from alcohol is both a physical and psychical concussion to the brain centers and the beginning of both organic and functional changes which may go on rapidly or slowly. Frequent intoxications develop imbecility and masked dementiæ. This is seen from any careful study of chronic inebriates. The resisting power of the brain to continue intoxication varies widely, yet it is evident that after certain changes have taken place the action of spirits may seem less acute and prominent, but the degeneration is continuous. Like repeated blows on the head, the effects are cumulative, and finally merge into well-marked organic neurosis.

The phenomena of intoxication from alcohol are familiar, and yet their physiological and pathological significance is largely unknown. An outline

view will be of interest. The first glass of spirits produces a sudden flushing or blanching of the vaso-motor circulation of the blood to the face. The facial muscles are first agitated; then become fixed and have a stolid, palsied appearance. Or they may twitch and quiver for a time, then settle down into a stolid, fixed state. The lips seem more firmly compressed; and when used rapidly, have a spasmodic movement. The eye appears bright and glittering; then becomes suffused with tears, and rolls about in an unusual way or settles into a fixed, palsied look. The voice is altered. Words come hurriedly or slowly, or very smoothly glide into each other, both with or without an effort. Respiration is quickened, and a sense of shivering and agitation pervades the body. Brain activity is suddenly increased, rapidly merging into confusional states, with difficulty of utterance. When more spirits are taken all these symptoms deepen. The first shock from a sudden interruption of the normal rhythmical flow of nerve energy passes away and a delusional period follows. This is anesthesia, with buoyancy, comfort and rest. The first action is that of shock and profound alteration of the functional activities of the brain. Later the special senses become impaired. Sight is diminished. Hearing is dulled. Feeling, taste and smell are lowered. There is a fall in temperature. Muscular power is enfeebled. Memory is weakened. Rapidity of thought and power of concentration, with conception and perception and judgment, are all more or less paralyzed. Stupor and unconsciousness follow. Before this later stage a period of exaltation and delusional confidence in ability to think and act more wisely and clearly is nearly always felt. There is in all forms of intoxication first a shock and concussion to the brain and nerve centers. Second, a period of anesthesia of the higher and sense centers, with delusional exaltations and boldness of mind. Third, these all finally merge into stupor, palsy, and unconsciousness..

The so-called stimulation is irritation and paralysis.

Psychological measurements of the brain and sense functions as well as the organic functions at their early period show palsy. Yet the theory of stimulation is accepted as a true explanation. Each intoxication is a profound sudden paralysis of the brain and nerve function.

A concussion from chemical agents acting in some unknown way, raising the heart's action, then lowering it, acts with especial severity on the higher brain centers.

The feeling of comfort, exaltation and superior vigor are delusions. The theory that the action of spirits will give new power and force in an emergency is an error. It brings recklessness and loss of judgment with failure of the finer conceptions of the relations of things, but nothing more.

When alcohol is used to the state of intoxication it is always followed by symptoms which show in some degree the injury which has been done. The common sequelæ of intoxication are headache and exaggerated sensations of head and stomach, with extreme debility; these are significant signs of injury. The acuteness of these symptoms calls for more spirits,

and finally the suffering subsides because the higher sense centers are blunted and anesthetized and fail to register the pain impressions.

From our present knowledge of the action of alcohol on the brain and nervous centers, we are sure that recovery from its toxic effects is slow, and in some cases almost impossible. The damage may be covered up and not be clear except from a minute study of the symptoms, and yet it exists.

Intoxication soon after or near the age of puberty has been the starting-point of very serious neuroses which continued years after, often breaking out in some neurosis or form of inebriety.

Profound intoxication at from forty-five to fifty is very serious in the entailments which not unfrequently follow from it.

Some of the facts which I wish to make prominent are these:

First.—Intoxication from alcohol to the extent of coma, with profound relaxation of all the functional activities of the body, is often a serious injury to the brain and nerve centers, and is followed by neuroses and organic change.

Second.—The significance of alcholic intoxication in the study of obscure diseases cannot be overstated. It may be both an active and an exciting cause, and should always be considered in neuro-psychopathies or other disorders that follow.

Third.—Intoxication at puberty and in middle life is often the starting-point of a circle of disease which is usually ascribed to other causes.

Fourth.—Intoxication always predisposes to the diseases of inebriety from alcohol or opium, which may come on suddenly at any time in after life.

Fifth.—Poisoning from alcohol is far more serious than supposed, both in its effects and the neuroses which follow.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF JESSE S. MYER, M. D.

The Combating of Tuberculosis in the Light of the Experience that has been Gained in the Successful Combating of Other Diseases.—(Professor Dr. Robert Koch, Berlin, *Deutsche Medicinische Wochenschrift*, No. 33, 1901.)—But a short time ago tuberculosis was regarded as the consequence of “social misery.” Now it is known to be the result of the ravages of a parasite which we may pursue and annihilate. Such a conflict requires the co-operation of all medical men, the state, and the whole population. As an example of what may be accomplished through proper hygienic and prophylactic measures, the author points to the results of such in the cases of bubonic plague, cholera, hydrophobia, and leprosy. In combating pestilence, the root of the evil must be struck, and no force squandered in subordinate, ineffective measures. The various modes of infection are discussed. Hereditary tuberculosis has been proven to be exceedingly rare. The transmission of the disease from animal to man has been heretofore accepted as proven, and most rigorous measures have been taken against it. The author’s investigations have led him to form an opinion differing from that generally accepted. He expresses himself as having been dubious throughout with reference to the transmission of the disease from animal to man, and the experiments upon smaller animals were not convincing. The opportunity to experiment upon cattle enabled him to arrive at absolutely conclusive results.

A number of young cattle, nineteen of them, after standing the tuberculin test, were subjected for eight months to every possible means of infection with the bacilli of human tuberculosis. Some were fed on tuberculous sputum, others received intravenous injections of the pure culture, others intraperitoneal injections, some were permitted to inhale them, etc. The post-mortems on these animals showed nothing but small foci at the point of injection, absolutely no other signs of tuberculosis.

The result was quite different when cattle were infected through the same means with the bacilli obtained from the lungs of others affected with bovine tuberculosis. “In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis.”

The same results were obtained from experiments upon swine: those that were fed upon sputum flourished, while those fed upon bacilli of bovine tuberculosis were stunted in their growth and died. Asses, sheep and goats gave like results. From this the author concludes: “Consider-

ing all these facts, I feel justified in maintaining that human tuberculosis differs from bovine and cannot be transmitted to cattle."

Inasmuch as the experimental investigation upon human beings is out of the question, the converse cannot be absolutely demonstrated. He endeavors to approach this indirectly. Milk and butter dispensed in large cities frequently contain tubercle bacilli in large numbers. If these bacilli could infect human beings, many cases of primary tuberculosis of the intestines would occur; especially among children. Statistics speak against this. The author has seen primary tuberculosis of the intestines but twice; but ten cases have been met with in the Charite Hosptal in five years; in 3104 cases of tuberculous children, Biedert saw sixteen cases, etc. It is quite probable even in these cases that the infection occurred through the ingestion of the bacilli of human tuberculosis. This can be proven now by the injection of bacilli obtained from one of these cases into the cow. If she develops tuberculosis, we could assume that the infection of the intestines had occurred originally through the bacillus of bovine tuberculosis. He makes the statement: "I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and *I therefore do not deem it advisable to take any measures against it.* So the only main source of infection of tuberculosis is the sputum of consumptive patients, and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion." The various methods to be employed in combating this dreaded disease are discussed in detail.

Concerning Human and Bovine Tuberculosis. — (Rudolf Virchow, Berlin, *Berliner Klinische Wochenschrift*, No. 31, 1901.) — Virchow states that he is one of the number appointed by the government to investigate further the recent observations relative to tuberculosis. This commission has looked well into the subject in hand, and has set forth further points to be considered in this connection. The specimens prepared by Koch in his series of investigations were presented to the commission, but he (Virchow) considered them inadequate to enable him to form a definite opinion. He thinks Koch goes too far in the expression that human tuberculosis is probably not transmitted from animals through the medium of milk, butter, etc. He has seen a number of cases at the Charite, in which the post-mortem revealed rather convincing proof. He says: "I think it possible that the negation of Koch will in all probability be disproven in the near future." He has long thought that bovine and human tuberculosis were not identical, and is not surprised that Koch has at last arrived at the same conclusion.

A condition cannot be considered tuberculosis without the existence of tubercles in the pathologico-anatomical sense. A tubercle is a lesion, containing not only tubercle bacilli, but also cells having their origin from

pre-existing cells in the body. Since he is one of the number appointed to conduct further investigations on this subject, he will keep these points in mind, and endeavor thereby to avoid misconceptions in the future. He would be greatly pleased if they should reach the conclusion that tuberculosis is rarely if ever transmitted to man through milk and meat. He has long since been of the opinion that this point has been greatly overestimated.

Concerning the Relationship Between Bovine and Human Tuberculosis.

—(Prof. Dr. P. Baumgarten, Tübingen, *Berliner Klinische Wochenschrift*, No. 35, 1901.)—The identity of the bacilli of human and bovine tuberculosis was thought to have been definitely and conclusively proven with the demonstration that morphologically and in their action upon small animals they are identical. The author has long thought, however, that a very important link in this chain of proof was missing. In 1893 he conducted experiments on two calves, quite similar to those recently conducted by Koch, and arrived at the same results. The one calf developed general miliary tuberculosis after inoculation with the bacilli of bovine tuberculosis, while the other, inoculated with those of human tuberculosis, showed no evidence of the disease, excepting a small focus containing bacilli at the point of injection.

The author is in possession of some interesting facts concerning the transmissibility of the disease from animal to man. He had an opportunity to make the post-mortems upon a number of individuals who had been inoculated with tubercle bacilli. Rokitansky had given expression to the theory that tuberculosis and cancer did not occur simultaneously in the same organism. Some twenty years ago a physician, prompted by the best of motives, followed out this train of thought, and endeavored, through the subcutaneous injection of tubercle bacilli, to cure otherwise incurable malignant tumors. He carried out these investigations upon six individuals doomed to death from inoperable carcinomata, hoping to relieve them empirically, as sarcomata are sometimes cured through erysipelas. The results were entirely negative. Neither good nor harm resulted from the experiment. The bacilli used in the subcutaneous injections were those of bovine tuberculosis, others not being accessible at the time. In spite of the fact that these injections were repeated a number of times in each case, the post-mortem failed to reveal the least evidence of tuberculosis, except at the point of injection, where there were small scars, containing no tubercle bacilli. The lymph nodes in close proximity to the scars were in no way involved.

While the author leans toward Koch's recently exploited theory, he urges the importance of continuing the study of the relationship of these diseases. He points out the possibility of the bacilli of bovine and human tuberculosis differing only in point of virulency; that they may differ only by virtue of the difference in their environments.

The Spread of Tuberculosis by Coughing.—(L. N. Boston, Philadelphia, *J. A. M. A.*, September 14, 1901.)—Boston devised a mask by means of which microscopic slides could be held indefinitely in front of the mouth and nose of tubercular patients. He was thus enabled to determine whether or not consumptives emitted a fine spray, containing tubercle bacilli, when talking, laughing, clearing the throat, etc. This test was applied to fifty patients, who were requested not to encourage coughing or other violent explosions. Some slides contained many droplets, varying from the size of a pin-point to that of a pin's head; some contained but few, while others presented an evenly spread film. In all but one case bacteria were found, and in thirty-eight of them tubercle bacilli varying from four on a slide to large clusters too numerous to count. The spray could be influenced through whispering, loud talking, clearing the throat, coughing, etc. It is quite evident that tuberculosis, diphtheria tonsillitis, etc., can be disseminated in this manner. The author suggests the possibility of surgeons and assistants suffering from acute or chronic diseases of the mouth, nose, etc., infecting wounds, and suggests a mesh of gauze for the exclusion of this danger.

The Inhalation of Formic Aldehyde as an Aid in the Open-Air Treatment of Pulmonary Tuberculosis.—(Dr. Crowry Muther, St. Lawrence, I. W., *Philadelphia Medical Journal*, August 31, 1901.)—This writer discusses the merits of formic aldehyde as a general antiseptic and disinfectant. Its application in the treatment of pulmonary tuberculosis has given very gratifying results. In a former report of seven cases treated, three were cured, two were benefited, and two were non-conclusive.

Two methods are employed: the dry method, in which paraform tabloids are used, and the moist method, in which formalin vapor inhalations are employed. Fifteen cases are here reported, five of which were completely cured, seven almost cured, one slightly benefited, and two unaffected. Systematic and persistent use of the treatment has given, in his hands, very satisfactory results.

Acute Splenic Miliary Tuberculosis.—(Dr. D. Stewart, *A. J. of the M. S.*, September, 1901.)—Stewart reports a case of miliary tuberculosis evidently primary in the spleen. Upon admission the patient presented symptoms which the attending physician had interpreted as typhoid fever. Marked enlargement of the spleen was in the beginning the only physical finding. The lungs and other organs were apparently normal. Gradually symptoms of general miliary tuberculosis developed, and the patient died within two months. The lungs, kidneys, liver, etc., upon post-mortem, revealed a few miliary tubercles, while the spleen, four times its natural size, was found to be one mass of tubercles, half of which had advanced to complete caseation. This was found nowhere outside of the spleen. Those in the lungs were recent and minute, and there were no indications

of consolidation. The process in the spleen was so extraordinarily out of proportion to that encountered elsewhere that the author had no hesitancy in considering it primary in this organ.

The Zoological Distribution of Tuberculosis.—(Woods Hutchinson, *Medical Record*, August 24, 1901.)—Hutchinson reports his observations upon animals during a period of six months in the London Zoological Gardens. Autopsies were made on one hundred and ninety-one animals and birds. Sixty per cent. were on mammals and forty per cent. on birds.

The proportion of tubercle was almost exactly the same in both. Of the entire number 24.6 per cent. died of tuberculosis. The relative value of race, food and housing as predisposing factors are briefly discussed in the light of the death records of the gardens for the past five years.

Pulmonary Tuberculosis as an Insurance Problem.—(Greene, St. Paul, Minnesota, *Am. Med.*, August 31, 1901.)—Greene urges a more general recourse to simple, thorough and scientific methods in examination for life insurance, with a view to reducing the mortality, protecting sound policy-holders, and directing attention to early and curable diseases. He refers to the statistics of a very reliable company, 12 per cent. of whose mortality in fifty-five years was attributed to tuberculosis; 32 per cent. of all those dying between twenty-five and thirty years of age died of tuberculosis. Of the former group, 18 per cent. died during the first two years of insurance, 53 per cent. during the first five years, etc.

He describes methods of examination by which such figures may be prevented, and shows how an expenditure of five or ten minutes more by those trained in the matter of physical examinations would exclude such possibilities.

The Relation of Alcoholism to Tuberculosis.—(T. N. Kelynack, *London Lancet*, August 3, 1901.)—The relationship of alcoholism to tuberculosis has been a mooted question for many years. The results arrived at by those studying the question have been diametrically opposite. It is maintained by some that alcoholism is antagonistic to tuberculosis, by others that alcoholism bears no special relationship to tuberculosis, by others, still, that alcoholism definitely predisposes to tuberculosis. Pathological data affords the most reliable basis for the formation of sound views on the subject. The author gives the results of his observation in a number of autopsies. During a period of three years he met with ten cases of peripheral neuritis in chronic alcoholics, eight of which presented tuberculosis of the lungs in various stages. Tuberculosis is also of frequent occurrence in the subjects of alcoholic cirrhosis of the liver. In a series of over one hundred post-mortems twenty-five per cent. presented evidence of tuberculosis; active phthisis was present in fourteen cases,

and active peritoneal tuberculosis in twelve cases. Ten per cent. of these patients appeared to die directly from tuberculosis.

Legislation Suggested for Controlling and Eradicating Tuberculosis in Animals.—(Prof. Duncan McEachran, *Lancet*, August 3, 1901.)—The author, in pointing out the great losses sustained by stock-raisers from tuberculosis in cattle, and the danger which threatens the community at large as a result of it, urges strict legislation for the eradication of the disease. The efficiency of the tuberculin test as a diagnostic aid is gone into, and is recognized by the author as a safe and reliable test by which even latent cases can be diagnosed. The precautions thus far taken by various states are here compared. Tuberculosis should be included in the list of contagious diseases. All foreign animals should be subjected to the tuberculin test. The use of tuberculin should be limited to qualified veterinarians. All reacting animals ought to be reported and quarantined. Those showing clinical symptoms should be killed at once. Testing of herds should be borne by the state. A reaction of two degrees indicates tuberculosis. Disinfection of the premises should be superintended by government officials.

SURGERY.

IN CHARGE OF WILLARD BARTLETT, M. D.

Benign Gas-Phlegmon of the Right Lower Extremity.—(Thevenot, *Gazette des Hopitaux*, No. 90, 1901.)—Thevenot remarks that wound infections attended with the formation of gas in the tissues had up to the time of his paper been regarded as uniformly fatal; especially those attended by the presence of Pasteur's "Vibron septic." But now, in view of the author's recent experience, this idea is no longer tenable. The case reported is that of a young man whose foot was crushed by a wagon; twenty-four hours later gangrene began, attended by the production of gas which infiltrated the tissues in the course of the long saphœnus vein as far as the latter extended. The patient refused amputation, so the author had to content himself with incisions wherever distention was marked. To his surprise the man made a complete recovery, with the loss of only the gangrenous part of his foot—the crushed part, of course. The "Vibron septic" was found in the wounds, and two monkeys inoculated with wound excreta died in twelve hours.

Some Surgical Lessons from the Campaign in South Africa.—(Thomson, *The Lancet*, No. 4066.)—The writer is authority for the statement that 14.8 of all who were hit in the war died. The article is divided into chapters, each treating of a different subject, and the whole containing

a vast amount of information. A mortality of only 10.8 per cent. characterized the treatment of all compound fractures of the femur; a result certainly due in part to the fact that there was no promiscuous probing and examining the wounds. As regards the important matter of abdominal wounds, Thomson is forced to conclude that the soldier has a better chance for his life without a laparotomy than with the same, when conditions in a field hospital are taken into account. (What finer commentary could be offered on the field hospital?) As a rule lodged bullets are not to be removed unless they produce symptoms; and especial emphasis is laid on the fact the soldier's fate rests in the hands of him who applies the first dressing.

Tendon Transplantation.—(Cone, *Johns Hopkins Hospital Bulletin*, August, 1901.)—Cone says that the condition of the muscles cannot be told till the first incision; that a healthy example is dark-red, a paretic rose-red, while complete paralysis induces a yellow color. The quilted suture is preferred, and the second dressing is to be made on the ninth day. As to nerve control after transplantation, Cone thinks that a change in the peripheral arrangement induces a change in the brain centers, the nerves themselves being merely indifferent carriers of impulses. Re-education of muscles takes place more rapidly in youth, hence the better results obtained at this time of life. Absolutely remarkable results have been obtained by tendon transplantation after paralysis of certain groups of muscles in consequence of the most varying causes.

The Segment Diagnosis of Tumors of the Spinal Cord, with Report of a Case Healed by Operation.—(Fedor Krause, *Berliner Klinische Wochenschrift*, Nos. 20, 21 and 22 of 1901.)—Krause is, of all the German surgeons, the one to whom most credit is due for our knowledge of the surgery of the nervous system, especially that which concerns tri-facial neuralgia. Consequently the article in question, dealing as it does with an unusual subject, necessarily awakens an unusual interest. He relates that the operative results have greatly improved in late years, due in part to improved surgical technique, but even more to the fact that we now strive to locate more exactly the *segment* under which the tumor lies. This is not always possible, however, and the greater the mistake, the more segments have to be removed—a matter of no little consequence. The author describes an interesting case in which the exact segmental diagnosis was made and operation performed; the diagnostic details cannot be reproduced here, although the method of making the diagnosis would repay any one for the reading of the original. The tumor was found exactly where expected, and proved to be 17x15x11.5 mm. in size. As a result the patient experienced an almost complete relief of all the symptoms which had persisted for about three years. Two other similar cases are also reported, one of which was operated upon with fatal result.

The Abdomino-Sacral and Other Methods for the Extirpation of Rectal Cancer.—(Sommer, *Medical Times*, No. 8, 1901.)—Sommer presents an article which is valuable because it gives in all its details the technique of the abdomino-sacral operation, and because it affords at the same time a critical comparison between the results of the various methods. He says the vaginal method of Rhen is only to be considered in cases where the tumor lies very low, and even then that the diseased lymph nodes cannot be removed with any degree of certainty. As to the value of a radical operation, it is claimed that Kocher has cases in which no recurrence is manifest fourteen and sixteen years after operation; certainly enough to convince the most skeptical. The French school teaches that the surgeon should satisfy himself with an iliac colostomy after extirpation of the tumor; our author speaks in no unmeasured terms against such a conclusion, and it would seem that most authorities agree with him. Three points are claimed for the combined or abdomino-sacral method, viz.: the danger of infection is much lessened, hæmorrhage can be better controlled, and a more radical operation, as far as the lymphatics are concerned, can be performed.

Blood Examinations as an Aid to Surgical Diagnosis.—(Bloodgood, *Maryland Medical Journal*, September, 1901.)—A number of interesting points in connection with this more modern development of our surgical science are mentioned by Bloodgood. For example, a general anæsthetic is contra-indicated when the patient's hæmoglobin is below fifty per cent., a fact well worth knowing. A sudden rise in leucocytes after an abdominal operation is of greatest value in determining an obstruction, in which event the number goes above 20,000 as a rule; in fact, a positive diagnosis can be made thus before clinical symptoms could possibly guarantee the same. The blood count is of great value in appendicitis as indicating the amount of inflammatory involvement in and around the little organ. Indeed, it cannot be underestimated when one considers three cases of gangrenous appendicitis related by the author. In them the leucocyte count varied from 35,000 to 23,000; but without this none of them would have been operated, so slight were the clinical symptoms. Of course all must have ended fatally without the surgical procedure, which, as it turned out, saved them. In general it may be said that in peritonitis the leucocytes decrease in number after a preliminary rise; and, furthermore, this may be taken as a grave prognostic indication. Where the count is above 18,000 in the first forty-eight hours of an acute abdominal attack Bloodgood would operate, no matter what the clinical symptoms. From the standpoint of prognosis, it may be said that a high count is favorable and a low one unfavorable to operative success.

THERAPEUTICS.

IN CHARGE OF WALTER BAUMGARTEN, M. D.

Ovarian Organotherapy.—(Van Krusen, *Johns Hopkins Hospital Bulletin*, July, 1901.)—For the past three years Van Krusen has employed ovarian extract in capsules, in doses of five grains, in selected cases in dispensary and private practice, grouping them into three classes: “(1) Those suffering from amenorrhœa, dysmenorrhea, and other forms of pelvic diseases; (2) those suffering from symptoms following the removal of the uterine appendages, for the relief of the vaso-motor changes . . . which, with indescribable depression, are so often produced by the premature menopause; (3) the disturbances associated with the natural menopause.” His experience leads him to the following conclusions: “Based upon the use of the American product upon American women: (1) The employment of ovarian extract is practically harmless, as no untoward effects beyond slight nausea have been noted, even when full doses have been administered. (2) In the treatment of amenorrhœa and dysmenorrhœa no good results were secured. (Although in some cases of amenorrhœa of obesity, remarkable results have been obtained by the use of thyroid extract.) (3) The best results were seen in the second class of cases, for the relief of the symptoms of artificial menopause, when, in a few instances, the congestive and nervous symptoms were apparently ameliorated. (4) No appreciable result was noticed in the use of ovarine in the natural menopause. (5) No definite or exact reliance can be placed upon the drug, as it often proves absolutely valueless where most positively indicated. (6) It is extremely problematic whether, in those cases in which relief was noted, the effect was not due to mental suggestion rather than to any physiologic action of the drug. The neurotic type of individual demanding this treatment will often be relieved by any simple remedy. (7) In those instances in which effects were noted, increase in dosage seemed to have little influence in maintaining the effect or preventing the patient from becoming accustomed to its use. (8) In conclusion, the theory, which suggests the use of this extract seems to be at fault, and the administration of ovarine or ovarian extract is based upon a wrong assumption as to the function of the ovary. In organotherapy the best results have been obtained from the use of the thyroid and adrenal glands, and the ovary in function is in no sense analogous to these organs. Its principal function is ovulation, and if any peculiar product is coincidentally manufactured, the isolation of this product has not yet been accomplished.”

Treatment of Carcinomatous Growths by Roentgen Rays.—George G. Hopkins (*Philadelphia Medical Journal*, September 7, 1901) has employed X-rays with marked success in cancer of the breast and the axillary

glands involved. He finds that with their use the tumor-mass decreases in size, its consistence becomes softer, subjective symptoms improve, ulcerations heal and offensive discharges lose their disagreeable odor. The treatment is based upon the assumption that "carcinomatous tissue is composed largely of embryonic cells whose molecules are unstable and can be easily destroyed or made to take on a new arrangement"—a healthy one.

A static electrical machine operated by an electric motor is utilized as the source of power in preference to an alternating current. A *soft* X-ray tube with its longer wave is suggested, on account of a greater destructive action on the tissues than the harder tube. The surrounding healthy parts of the body are protected against the action of the rays by several layers of lead foil glued to pasteboard or a flexible material. The duration of the exposure of the tumor is controlled by the effect upon the consistence of the mass, the usual time when daily treatment is given being from five to ten minutes; when the interval is longer, from ten to eighteen minutes. Emphasis is laid upon the point that the distance of the tube from the exposed surface should be ample—in daily treatment at least thirty inches. The errors to be avoided are: too long exposure, too short a distance between the tube and the patient, and improper apparatus.

Treatment of Certain Forms of Cancer by the X-ray.—Williams (*Jour. Amer. Med. Ass'n.*, September 14, 1901) divides cancers, from the standpoint of X-ray treatment, into internal and external forms, of which he discusses only the latter class in regard to the therapeutic effect of the X-ray. This class includes epidermoid cancers, typical epitheliomas and rodent ulcers, "and also cases which had the clinical appearance of beginning cancers, but which under the microscope were found to be plasmoma, or simple cases of ulceration and necrosis," . . . situated particularly about the face and hands. They are the forms that have been amenable, in a measure, to other therapeutic proceedings, but the present method has the advantage of painlessness, harmlessness, and that it yields good cosmetic effects. Great care is to be taken to prevent X-ray burns. The advantages of this new method are: "The treatment causes no pain; healing is produced without creating a burn; some cases improve after a few sittings without further renewal of treatment; the treatment can be carried on without interfering with the work of the patient."

Artificial Respiration in Bronchitis in Children.—(Hermann, *Therap. Monatshft.*, August, 1901.)—Hermann suggests the use of artificial respiration in cases of severe bronchitis in children, and cites the case in which he was first led to employ it; he tided the patient over a critical period, when respiration had risen to 80, and pulse to 160, by following up the child's expiratory movements with moderate pressure upon the false ribs, and later by instituting Schultze's method of artificial respiration in the newborn.

He now employs this method in bronchitis and broncho-pneumonia, as soon as threatening symptoms appear, and teaches the patient's attendants to perform it for half hour at a time at stated intervals, much as he prescribe baths. Pressure on the false ribs is made synchronously with expiration, in order to aid the weakened expiratory muscles, and to effect a more complete expiration, which will make possible a deeper inspiration, and consequently a greater oxygenation of the blood. Expiration is facilitated, respirations become deeper and less frequent, and the pulse less rapid.

Oxygen and Steam with the Vapors of a Special Inhalation Mixture in Pulmonary Diseases.—Penrose (*Johns Hopkins Hosp. Bull.*, November, 1900) advocates the use in catarrhal affections of the nose, pharynx, larynx, in grip, chronic bronchitis and pulmonary tuberculosis with secondary infection, of steam or oxygen, or both, which has been passed through a mixture of creosote, turpentine and compound tincture of benzoin in a pint of boiling water. He details a case of tuberculosis with beginning cavity formation in which the sputum decreased rapidly and pus organisms disappeared entirely within a few weeks. Patient gained weight, and the tubercle bacilli disappeared after three months of the inhalation treatment; another case, one of purulent bronchitis, in which the sputum and the pus organisms rapidly disappeared and the cough ceased; finally a case of chronic infantile purulent bronchitis, which yielded rapidly, and permitted a rapid development of the child.

The method may be applied by passing oxygen or steam through the mixture, utilizing a "Benzoinal Inhaler" or "Hynson and Westcott Inhaler," or, more simply and less expensively, especially for home use, by inhaling the fumes as they rise from the boiling water. To be effective, inhalations should be of ten to fifteen minutes' duration, and taken systematically three or four times a day. To begin with the following formula is used:

℞	Creosote (Beechwood).....	
	Olei terebinthinæ.....	aa ʒ iv
	Tr. benzoini co.....	ʒ iij
M. Sig.	—Dram of this mixture to a pint of boiling water.	

A greater proportion of creosote and oil of turpentine may gradually be added until finally the formula contains equal parts of each ingredient.

Some Recent Inquiries and Researches Into the Poisoning Properties of Naphthalene and the Aromatic Compounds.—White and Hay (*Lancet*, August 31, 1901) report observations on the toxic effect of the dinitro-benzene compounds in workers who handle these substances in the manufacture of high explosives, and experiments on cats to prove the absorability of the compounds through the skin. In a number of cats a small area of skin on the back was shaved, and after allowing an interval of two

or three days for healing tears or excoriations, through which undue absorption might take place, an ointment containing twenty-five per cent. dinitro-benzene was applied and a gauze dressing sealed over it with collodion. In from one to four days a cyanosis developed, reflex irritability was increased, and the gait became, at first rather stiff, finally spastic; the animals dying in an asthenic condition, with twitchings of the head and paws. The blood was found to be of a chocolate color, giving on spectroscopic examination a dark absorption band corresponding to that of methemoglobin. The red corpuscles were misshapen and small. No dinitro-benzene could be found in the urine, which was in most cases normal. The liver in one case had undergone fatty degeneration; in another case the kidneys showed a parenchymatous inflammation.

Dr. Hay produced symptoms in himself, similar in a milder degree to those observed in cats, by rubbing a quantity of the ointment containing one and one-half grains of dinitro-benzene into his groin. He developed, on the second day, marked blueness of the lips and finger-nails, some headache, a rapid pulse and a slight tremor. These gradually disappeared in the course of three days.

Chemically pure and absolutely dry dinitro-benzene is absorbed by the skin with difficulty, but in ointment or in contact with impurities which occur in the commercial product it easily passes through the skin, particularly with the friction incident to manipulating it.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF R. B. H. GRADWOHL, M. D.

Salivary Lithiasis.—(Salomon, *Progres Medical*, August 17, 1901.)—Salomon describes a case of salivary lithiasis. The stone weighed 7.25 grammes and was found in the duct of the Steno. The history of the case is interesting: first, because of its size and weight; secondly, because it was carried nearly thirty years *in situ*; and thirdly, because it occurred in a woman—most of the cases reported having been in males. The frequency of occurrence of salivary calculi is in the proportion of eighteen instances in females to eighty in males.

Cardiac Atrophy and Hypertrophy.—(John Gutch, *Jour. of Path. and Bacter.*, vol. vii., 1901.)—This writer made an investigation to determine whether hypertrophy of the heart is brought about by an increase in the number or size of the muscle fibers, or by both. Gutch worked with a micrometer eye-piece, one division in the scale of which was 0.0037, as tested against a standard scale, when the microscope tube was at its lowest. Specimens were taken from the left ventricular wall at the junction of the upper with the middle third, and near the ventricular septum; mus-

culus papillaris of the mitral valve; right ventricle front wall at the junction of the upper with the middle third; muscular papillaris of the tricuspid valve. The conclusions reached are: in normal hearts the fibers of the left side are broader than those of the right side, and on the average the fibers of the papillary muscle on each side are slightly less than the fibers of the wall, but this is not a universal rule. The fibers of the hypertrophied hearts are considerably broader than normal, indicating that the increase in size of the heart is largely due to hypertrophy of the individual muscle fibers. The increase in weight of the heart in conditions of hypertrophy is partly due to increase in size of the fibers themselves and partly to increase in connective tissue elements, which is seen particularly in the hypertrophied heart of chronic interstitial nephritis.

Histopathology of the Heart in Typhoid Fever.—(S. Drago, *Ziegler's Beitrage zur path. Anat. u. allegem. Path.*)—The author makes a microscopic study of the heart in two cases of fatal typhoid in soldiers. He found alterations in the blood vessels, connective tissue and muscular fibers, especially a filling-up of the blood vessels. Hemorrhagic areas were also found scattered throughout the heart's wall, irrespective of position; growth of lymphoid cells was found in otherwise slightly changed connective tissue, and finally disappearance of the muscular tissue leading to atrophy. This last condition, the writer suggests, might eventually cause heart rupture in typhoid fever.

Hemolymph Glands.—(Adred Scott Warthin, *J. of Med. Research*, July, 1901.)—Warthin gives a contribution to the normal histology and pathology of the hemolymph glands. He cites the fact that there are some lymph glands of the body, notably the prevertebral retroperitoneal glands, which have appeared to play an entirely different part from that played by the other lymphatic glands of the body. Lymph glands with blood sinuses are constantly present in the body. There are two types, the splenolymph and the marrowlymph glands, and between these forms there are transition forms. Under normal conditions the hemolymph glands are concerned in hemolysis and leucocyte formation. Specific changes showing their undoubted blood-forming function are found in these glands in certain diseases. The writer gives this contribution out as a preliminary report and states in conclusion that many new fields are opened up in the study of these glands. Perhaps a further study will solve the problems relating to blood-formation and pathologic conditions of the blood and blood-forming organs, as seen in the various forms of anemia, leucemia, etc.

A Histologic Study of Elastic Tissue in Normal and Diseased Organs.—(Melkinow-Raswedenkow, *Ziegler's Beitrage*, Bd. 26.)—The writer has studied the various organs of the body in health and disease with the use

of the newer elastic tissue stains. His results are as follows: In lymph glands elastic tissue forms a portion of the fibers, trabeculæ and pulp. Likewise in the spleen the same integral parts as the lymph glands show elastic tissue. Bone marrow contains no elastic tissue. The tongue contains elastic tissue, lying in the papillæ, the submucosa and between the muscle fibers. The capsule and the peritoneal tissue of the liver shows elastic tissue, but not the acini. The kidneys contain scarcely any elastic tissue at all. The heart of adults shows elastic tissue in the endocardium, myocardium and epicardium of all four chambers, while in the newborn the muscle cells of the ventricles are not surrounded by such. Blood vessels are the chief source of elastic fibers, which are present in all three coats. Capillaries have no elastic fibers. The larger lymph vessels show elastic tissue. The limiting membrane of the walls of serous cavities contains this tissue. The spinal marrow, the cerebellum, cerebrum and ganglia contain little elastic tissue. Spinal dura contains a good deal of elastic tissue, while the cerebral dura does not contain nearly so much. Bone contains but little.

The following changes in diseased organs are recorded by this writer: Long-continued stasis produces hyperplasia of the elastic constituents of organs. Hemorrhage and infarction produce quite an appreciable amount of tough elastic tissue. In hyperplasia and atrophy this elastic tissue formation becomes varicose and thicker. Degeneration of various sorts does not produce much change. It is especially increased in conditions of hypertrophy of connective tissue. The elastic tissue is destroyed in purulent inflammatory conditions.

Multiple Leiomyomata of the Kidney. — (Lartigau and Larkin, *J. Med. Research*, July, 1901.)—The authors report two cases of multiple leiomyomata of the kidney. The cases were accidental autopsy findings, occurring in women about thirty-five years of age, who died of pneumonia. The growths affected the left kidney in each instance. The capsule of the kidney of the first case was adherent at points corresponding to the location of the small subcapsular myomatous nodules. The growths on section were found to extend in the kidney cortex. Microscopic examination showed the presence of a mild grade of round-cell infiltration and albuminous degeneration in the cortex of the kidney. The changes of import consisted of the presence of bundles of rather loose unstriated muscle fibers running in different directions. In one case the bundles of myomatous growth were continuous with the capsule of the kidney, while in the other case this was not equally true. Study of serial sections of the tissue from the second kidney always revealed an intimate connection with the muscle fibers of at least one medium sized artery, sometimes two. The writers conclude their interesting report (which is but an abstract) by stating that myomata of the kidney are rare; leiomyomata may be multiple or discrete in distribution; they may have a two-fold origin: the capsule of the kidney and the blood vessels, and that multiple neoplasms of this nature may give rise to no symptoms during life.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF HUGO EHRENFEST, M. D.

Is the Kraske Operation Justifiable in Women?—(George M. Edebohls, New York, *Am. J. of Obst.*, August, 1901.)—Edebohls answers this question absolutely in the negative. If malignant diseases or otherwise incurable conditions of the lower part of the rectum necessitate its resection, the necessary excision can be made by the vaginal route, by perineotomy, by incisions lateral or posterior to, or circumscribing the anus, or by various combinations of these procedures. In cases calling for excision of the upper rectum in women, the vaginal route has recently been proposed as an easy way of access to the upper end of the rectum, as well as to the lower portion of the sigmoid. The author, however, prefers in these cases the abdominal route. He considers the latter preferable to the Kraske operation with respect to technique, after-treatment and comfort of the patient. He furthermore claims the superiority of adominal section in cases of high carcinoma of the rectum over the Kraske operation, on the following points:

I. A preliminary colostomy and, in favorable cases, a secondary operation for the closure of the artificial anus becomes unnecessary.

II. Removal of the sacral glands and of all affected tissues posterior to the rectum can be accomplished with greater facility and thoroughness.

III. The liver can be examined for secondary cancerous nodules immediately after opening the abdomen, and, if such nodules be found, the abdomen can be closed without inflicting further unnecessary operative injury upon the patient.

On the Influence of an Antisyphilitic Treatment of Pregnant Women Upon the Fetus.—(G. Riehl, Leipsic, *Wiener Klin. Wochenschr.*, November 26, 1901.)—By referring to statistics of different writers the author shows that the life of the fetus is greatly endangered by syphilitic infection of the mother; general antisyphilitic treatment during pregnancy does not seem materially to improve the viability of the fetus. In the majority of cases a syphilitic disease of the uterine cavity, involving the decidua or placenta, is responsible for the death of the fetus. This fact induced Riehl to believe that a local rather than general treatment of the mother might offer a better chance for the child. He therefore placed vaginal suppositories, containing fifteen grains of unguentum hydrargyri, just in front of the external os and continued this treatment for the rest of the pregnancy, exhibiting at the same time the usual antisyphilitic treatment in the interest of the mother. The results were better than expected. Out of thirty-three cases only four children were still-born. Riehl believes that the extremely favorable results are due to the local treatment, and recommends this simple procedure for extensive trial.

A Foreign Body Obstructing Parturition.—(Garnecki, *Deutsch. Mediz. Wochenschr.*, No. 23, 1901.)—Garnecki reports the following singular case: He was called to attend a labor case. On his arrival at the house the husband of the patient told him that a "tin box" would have to be removed from the genital tract before the baby could be born. An examination showed: Woman of twenty-seven years, well developed, pelvis normal, os uteri dilated to the size of a fifty-cent piece, head presentation, child alive, membranes ruptured, uterine contractions satisfactory. Between the head of the child and the os uteri lies a foreign body, the supposed tin box. On account of this obstruction the head was not able to dilate the os and a spontaneous termination of parturition seemed under these conditions impossible. Therefore removal of the body from the uterine cavity was decided upon. The box was turned until the lid came into view. The lid was then taken off and removed. It was now possible to grip the body of the box with forceps and to extract it by careful rotatory movements. The box was cylindrical, had a diameter of ten cm. and was four cm. high. The parturition was finally ended by means of forceps, after two dense, fibrous scars in the margin of the os uteri had been divided. The child was alive and fully developed. Puerperium was normal.

On inquiry the patient gave the following remarkable explanation for the introduction of this box: When twelve years old her menstruation appeared for the first time. In order to prevent a subsequent hemorrhage she introduced this box, in which she had kept pens, into her vagina. Nevertheless menstruation was always regular. Later she tried to remove the box, but did not succeed. She never consulted a physician, and never experienced any inconvenience. She married at twenty-five. Coition was never interfered with, and the husband was unaware of the existence of the box up to this confinement. When five months married she had a miscarriage in the fourth month of pregnancy. Up to this time she always had felt the box in her vagina, but after the abortion, to her surprise, it had disappeared. She was not able to explain the fact to herself, but was certain that the box had not fallen out. Thus it is beyond doubt that the box subsequent to the abortion slipped into the uterine cavity. It had been in the vagina thirteen and in the uterus one and one-half years without producing any noteworthy disturbances.

PEDIATRICS.

IN CHARGE OF JOHN ZAHORSKY, M. D.

Vaccination in Infantile Eczema.—(Stevens, *Can. Med. Rec.*, May, 1901.)—The writer relates an instance where infantile eczema was promptly cured by vaccination. The vaccination was performed in an emergency, at the same time having in mind the fact that eczema is usually given as a contraindication to vaccination. The marked curative effect induced him to try it in two other cases with the same happy results.

Pernicious Anemia in Infants.—(Rotch and Ladd, *Arch. Ped.*, Sept., 1901.)—The authors discuss the subject of pernicious anemia in infants and detail a preliminary report of a case. They point out that, in the present state of our knowledge, extreme difficulty is found in distinguishing the different blood diseases of children.

The disease is very rare in infancy. The youngest case reported by Demme was three months old. As to the etiology nothing positive is known outside of those cases of severe anemias due to the ankylostoma duodenalis. The pathological changes are similar to those which occur in adults.

The case reported occurred in a girl who, at four months of age, began to lose in weight, although she was breast-fed. Upon being placed on modified milk she again gained in weight. At five months she had a mild attack of measles. Attacks of indigestion appeared at intervals; pronounced pallor was present when ten months old. A systolic murmur was audible over the precordia, and puffiness of the face was noticed. Several blood examinations revealed the picture of pernicious anemia: for example, hemoglobin 20 per cent; leucocytes, 18,800; red blood corpuscles, 1,088,000; color index normal; megaloblasts and normoblasts present; poikilocytosis, macrocytes, and polychromatophilia. Anemia infantum pseudoleukemia was excluded by the absence of an enlarged spleen and the relative low number of leucocytes.

By careful dieting and the administration of iron preparations the infant recovered in about six months. The most effective part of the treatment was the timely inhalation of oxygen gas.

The Therapeutics of Whooping-Cough.—(Mays, *N. Y. Med. Jour.*, Sept. 7, 1901.)—Mays, in conformity with the belief that irritation of the pneumogastric nerve is responsible for the spasmodic cough, applies counter-irritants over these nerves in the region of the neck, and now claims to have the most signal benefit. His directions briefly are: Trace the pulsating carotids from the angle of the jaws to the clavicle. As the pneumogastric lies in close proximity to this vessel, this line serves as its landmark. Along this line gentle massage, a strip of mustard plaster,

the application of tincture of iodine or a mixture of camphor, chloral and menthol and other irritants may be used with great benefit. In very severe cases a hypodermic injection of silver nitrate along the course of the nerves must be resorted to. This line of medication causes the most remarkable effect in a few days.

Diabetes Mellitus in Childhood.—(Cotton, *J. A. M. A.*, Sept. 7, 1901.)—The author reports a case of diabetes mellitus in a child six years old, and briefly discusses the disease in general. His patient was treated with a diabetic diet, pancreatic extract and sulphate of sodium. She died in about two months.

Under etiology, heredity, congenital syphilis and infectious diseases are placed. An advanced case presents extreme inanition, emaciation, muscular weakness, dry skin and hair and extreme irritability. Polyphagia, polydipsia and polyuria are the special symptoms present. Recovery is very rare.

The Treatment of Intussusception.—(Bernard Pitts, *Ped.*, Sept. 15, 1901.)—Pitts opened the discussion on this subject in the Section on Diseases of Children at the recent meeting of the British Medical Association. He gives a table of one hundred and fifteen cases, showing sex, age, variety, treatment and result. In the table one hundred and five cases were children under twelve years of age, and of these thirty-six recovered. Primary abdominal section is now the rule, and the mortality has been lately reduced to fifty-eight per cent. His present conclusions:

1. Inflation or injection should be tried only if the case is seen within a very few hours and if the symptoms are not very acute.

2. Inflation may be a useful preliminary by limiting the field of operation.

3. When resection is necessary this may be followed by reunion of the bowel in chronic cases. In acute cases a wide resection may be carried out at once; an operation for the restoration of continuity of the bowel at a later period.

D'Arcy Power at the same meeting reported sixty-five cases with forty-two deaths. Only one case in which resection was done recovered. He advocated immediate operation.

Growing Pains.—(Hale, *Ped.*, July 15, 1901.)—Hale refers to the frequency with which the general practitioner meets what are termed "growing pains" by the laity. He believes these pains almost always to be rheumatic manifestations, and reports cases which support this view.

True Dental Stigmata of Syphilis.—(*Pediatrics*, August 1, 1901.)—In an editorial attention is called to the fact that the subject of the teeth in hereditary syphilis is enveloped in mist to the great majority of medical practitioners. The milk teeth are subject to decay and irregular

growth from a variety of causes, such as fevers, stomatitis, rickets and malnutrition. Erosions, facets, hollows and deformities may be found, but there is nothing characteristic in these.

In the second set, however, when the general health is good, changes occur which are more or less characteristic:

1. *Irregular decay*. Cupping or hollowing, or general "collapse." This may be suspicious, but is too often seen elsewhere to be of great value.

2. *Furrows (dents rayes)*. Certain of these may be cause for serious consideration; the "sulciform erosion" of Parrot belongs to this class.

3. *Microdontism*. This is emphasized by Fournier. He attributes greatest significance to the dwarfism of the incisors.

4. *Atrophy of the crown*. The top of the tooth has a shrunken and wrinkled look, comparable to a small tobacco-pouch with the strings pulled tight. This change may occur as far back as the first molar. In the incisors the cutting edge decays more at the center than the margins, and we get the tapering tooth with concave, half-moon cutting edge (Hutchinson's teeth).

5. *Chalk lines (sillons blanc)*. These are rare. They are described as milky or chalky in color, and found on the two upper front permanent teeth. They are horizontal, symmetrical, about one millimeter in width, and occur midway between the gum and the crown.

NEUROLOGY.

IN CHARGE OF SIDNEY I. SCHWAB, M. D.

A Clinical Classification of Insanity.—(F. X. Dercum, *Jour. of Nervous and Mental Dis.*, September, 1901.)—This is a notable attempt to form a classification of insanity based upon clinical data. The author believes that such an attempt is possible at the present time. There can be no doubt that a classification based upon anatomical and pathological evidence is the one that must finally prevail, yet our knowledge in these respects is too meager as yet to make such a classification satisfactory or useful. Inasmuch as insanity is, above all, a clinical and personal phase of disease, the best way to approach its study is from the point of view of practical medicine. For this reason the author considers first the commonest form of abnormal mentality, the one that is most frequently met with by the general practitioner. This form, of course, is delirium. The deliria are divided as follows: *First*, simple febrile delirium. *Second*, specific febrile delirium (Bell's delirium, acute delirious mania, etc.). *Third*, afebrile delirium. With delirium are grouped the conditions which are best described as confusion and stupor. The second group consists of mania-melancholia, and their combination with period sequences under the form

of circular insanity. Following the recent trend of thought on this subject, the writer believes that these forms are not to be sharply differentiated, but that they are phases of one condition, to which he gives the name melancholia-mania. *Third*, paranoia. *Fourth*, neurasthenic insanity. *Fifth*, dementia. These five are regarded as simple or elemental phases of insanity. Insanity in relation to the various epochs of life, infancy, puberty, early adult age, mature adult age, middle age, and old age is next considered. Idiocy and imbecility are held to be purely quantitative defects, with gross pathological lesions, and are, therefore, not insanities. The age of puberty is characterized by the appearance of the precocious dementias, such as hebephrenia, katatonia, dementia, paranoides; early adult age by the melancholia-mania syndrome; middle life by melancholia. In old age the forms classed as senile dementias are most commonly found. Thus far the subject of insanity has been approached from two points of view: *first*, from that of its simple or elemental forms; *secondly*, as these forms bear relation to the different epochs of life. In order to complete the classification, the relation of insanity to diseases in general must be considered. In regard to the acute infections, delirium, confusion and stupor are the forms most commonly met with. Alcoholic insanities are divided into delirium (delirium tremens), confusion, stuporous insanity, simple alcoholic dementia, and alcoholic dementia with systematized delusions. Similar facts are presented in the insanities produced by lead. The author concludes by noting the following: *First*, all mental disorders arising from diseases and morbid physiological states belong to the symptom group of delirium, confusion, stupor, dementia. *Second*, the melancholia-mania syndrome bears no relation to the various infections, intoxications, or visceral diseases. They are diseases primarily of the nervous system. *Third*, the delirium-confusion-stupor syndrome may occur at all ages. Melancholia-mania and paranoia are related to different periods of life. *Fourth*, the delirium-confusion-stupor syndrome usually occurs independently; its forms may, however, occur as complications or episodes in any of the other affections.

The Supra-Orbital Reflex.—(D. J. McCarthy, *Neurologisches Centralblatt*, No. 17, 1901.)—This new reflex, discovered by McCarthy, deserves to have a more important place clinically than most of those which have recently been described. It is obtained by striking with the percussion hammer the supra-orbital nerve. A fibrillary tremor of the orbicularis palpebrarum results. This constitutes the new reflex. The eyes do not close. If the reflex is increased, it can be elicited by stimulating the nerve anywhere in its course. The reflex arc consists of the supra-orbital branch of the fifth, the fifth nerve itself, the seventh and its branch to the orbicularis palpebrarum. In one hundred normal persons examined it was obtained in every case. Clinically the examination for the reflex resulted as follows: In a case of brain syphilis it was

absent on the left side, and in a case of tic. douloureux it was absent. In facial paralysis it was constantly found wanting. In twenty-five cases of tabes the reflex was found to be present, in twenty-three cases lessened, and in two cases totally absent. The author believes that this reflex proves that a correlation of function exists between the two orbital branches of the fifth and seventh nerves.

A Case of Generalized Polyneuritis, with Facial Diplegia, Probably of Gonococcal Origin.—(F. Raymond, *Le Progres Medical*, July 27, 1901, No. 30)—That an infection of gonococcal origin has more than a local importance has been amply demonstrated by numerous clinical observations. Gonorrheal rheumatism, endocarditis, peritonitis, etc., are now scarcely to be regarded as clinical curiosities. Its effect on the nervous system has not been actually demonstrated for the cases of myelitis in which there was a history of gonococcal infection have not stood the test of careful clinical examination, as in no case has the gonococcus been actually found in the cerebro-spinal fluid or in the cord itself, yet the direct sequence of the infection and the appearance of nervous symptoms leaves no other explanation as to its origin possible. The following case seems to prove conclusively the existence of a blennorrhagic polyneuritis. Case: Man, thirty years old, contracted gonorrhea, the acute stage of which lasted five weeks; at the end of that time a prickling sensation and numbness appeared in the lower extremities. Motor paresis then appeared to such an extent that the patient could not walk. The upper extremities and the face were successively attacked. There was marked hyperesthesia of the lower extremities. Facial paralysis was especially severe. Electrical examination of the extremities showed normal condition of nerves and muscles, but the facial nerves, on both sides, showed the reaction of degeneration. Improvement took place gradually, and in the course of a month or so the extremities regained their normal function.

Treatment of Febrile Delirium Tremens by Cold Bathing.—(M. Salvant, *Gazette des Hopitaux*, September 5, 1901.)—Salvant calls attention to this method of treating delirium tremens, derived from the good results of bathing in febrile conditions due to infectious diseases. The patient with delirium tremens is first isolated. No force should be used. Liquid nourishment should be given. If the rectal temperature is higher than 39° , cold bathing is indicated. The temperature of the bath should be 18° , when the state of the heart permits; in presence of a tendency to collapse, the temperature of the baths should be raised to 25° or 28° . The duration of the bath is from five to ten minutes; if the pulse shows no weakening it can be prolonged to fifteen or twenty minutes. It is better to give frequent baths rather than to prolong each one. They should be continued until the delirium and fever have disappeared. The baths should be given under the personal direction of the physician, special attention being paid to the condition of the heart.

GENITO-URINARY SURGERY.

IN CHARGE OF H. MCC. JOHNSON, M. D.

Prognosis and Treatment of Gonorrhœa.—(Neisser, *Cleveland Medical Gazette*, September, 1901; Transl. McMurtry.)—In reply to questions from a special committee of the American Medical Association, Neisser says practically all cases of gonorrhœa are curable if properly treated. While cases of gonorrhea of the anterior urethra present less difficulty, even in those of the posterior urethra complete recovery can be obtained through prolonged treatment. He condemns astringents in the acute stages, using unirritating germicides. In almost all anterior urethritides, prolonged injections are as effective as irrigations. Protargol for anterior injections, in one-quarter to one-half per cent. solution, occupies first place. For the posterior urethra one to four per cent. is the proper strength. Chronic cases are treated with bactericidal solutions as long as gonococci can be demonstrated. When these have disappeared, astringent solutions may be used. While there is no test upon which we may rely with *absolute certainty* for the absence of gonococci, if, after careful and repeated examinations, with the aid of mechanical and chemical means for provoking their presence, they cannot be demonstrated, we may allow the patient to marry, with assurance of protection to the wife, as far as we are able to judge.

Prognosis and Treatment of Gonorrhœa.—(Burnett, *Cleveland Med. Gaz.*, September, 1901; Transl. McMurtry.)—Burnett considers one hundred per cent. of cases of gonorrhœa curable, provided the patient has no other disease. Irrigations of the urethra with germicidal solutions, combined with appropriate internal medication, is the best means of controlling the disease in acute urethritis. Chronic cases must be treated, according to indications, by irrigation, injection, endoscopic application, the sound, massage of prostate, and stripping of the seminal vesicles. It is unsafe to depend upon the absence of gonococci from the urethra to allow marriage. They may remain imbedded in the urethral tissues in a latent state for years. There is no test that can be relied upon to determine their absence from the urethra. After a period of activity and decline, the original virus seems to lose its power for damage. The disturbance left is due to the damage previously done to the anatomical structures, which may disappear of itself or continue unabated. The two most powerful factors in the creation of sexual disturbances, alcoholic stimulation and excessive sexual excitement, may bring about the recurrence of a gonorrhœal inflammation of the urethra that has been, to all practical appearances, cured of a former attack. On the other hand, sexual rest, brought about by purely physiological intercourse, or absence of excitement of the sexual apparatus, may conduce to such a quiescent stage of the gonorrheal

germ, that a man may marry with the assurance that, as long as he is temperate in his habits and true to his marital vows, his former gonorrhœal sins will not be visited upon his wife. And so, after we have repaired the damage done a urethra by gonorrhœa and find, after an interval, that may vary from six weeks to six months, that there is no more discharge and that the urethral mucous membrane appears healthy through the endoscope, we can say to our patient that he is in a condition to marry.

The Roentgen Rays in the Diagnosis of Urinary Calculi.—Cummings (*Canadian Practitioner and Review*, July, 1901) regards the X-rays as a means of positive diagnosis in calculous diseases of the urinary tract, being of special value in the vague and doubtful cases. He gives short histories of eight cases which he has skiagraphed, in three of which the presence of stone was confirmed by operation. Two cases in which the X-ray showed stone were not operated upon. In the three other cases, although there were symptoms of stone, the skiagraph showed none to be present.

In four cases of urethral calculi, all of them gave positive results with the X-ray. The diagnosis in Case I. was confirmed by the scratch on a wax-tipped ureteral catheter, and subsequently by the passage of the calculus. A later skiagraph in Case II. showed that the calculus had moved down the ureter to within one inch of the bladder. Case III. subsequently died of uræmia and terminal infection. Repeated skiagraphs in Case IV. showed the calculus in the same position.

By this means vesical calculi can be more simply and accurately diagnosed than by the ordinary methods. Out of the four cases reported, all with positive results by skiagraph, failure to detect the stone by sounding in two of them had occurred. In one case the fact that the stones were not encysted was readily proven. By rolling the patient over on his abdomen, after having taken a skiagraph in one position, and again exposing him to the X-rays, showed the stones had changed their location. A large stone was noted by means of the skiagraph in Case IV. This was thoroughly removed by litholopaxy. Six months later, because of distressing symptoms, the patient was again subjected to the X-rays, demonstrating a large stone in the bladder, two smaller ones in the right ureter, and one small stone in the left ureter. The bladder stone had evidently dropped into the organ after the first operation and rapidly grown. This was removed by litholopaxy. A subsequent skiagraph showed the bladder free of calculus, but the ureteral stones still in place.

Double Ureter of the Right Kidney.—(Scudder, *A. J. Med. Sc.*, July, 1901.)—The author reports a case of double ureter of the right kidney. One ureter, which was patulous, connected the kidney with the bladder, while the other, which was blind, ended as a closed sac about the diameter of the thumb, and extended from the kidney to the neighborhood of the

internal urethral meatus. The latter was enormously distended, so that at its widest part it measured eleven cm. It was very tortuous and was filled with a yellowish fluid containing leucocytes and bacteria. Each ureter had a separate pelvis. The child, twenty months of age, presented symptoms of abdominal origin: high temperature, rapid pulse, abdominal distention and distressed countenance. A laparotomy showed the peritoneum and appendix normal in appearance, with no omental or intestinal adhesions. The child's grave condition prevented further procedure. The abdominal incision was stitched up, the child dying within twenty-four hours.

DERMATOLOGY.

IN CHARGE OF M. F. ENGMAN, M. D.

The Role of the Streptococci and Staphylococci in the Etiology of Skin Diseases.—(Dr. R. Sabourand, *Brit. Jour. of Derm.*, September, 1901.)—At the sixty-ninth meeting of the British Medical Association, Dr. Sabourand states that there are three bacteria of the "coccus" group which are mainly concerned in the production of skin diseases:

1. A streptococcus which is identical with the streptococcus of Fehleisen, and capable of showing wide variations of virulence. It is the cause of erysipelas and allied diseases, and concerned in the production of elephantiasis. The specific lesion of this coccus in the skin proper is the "phlyctene" (small pin-head vesicle) or the bullæ of impetigo of Fox. In addition, he considers the streptococcus the causative factor in certain superficial ulcerations and crust formations, to which he gives the name of "rupia," using the old dermatologic significance of the word; and that it also enters as a complicating factor into many inflammatory affections of the skin.

2. The staphylococcus pyogenes aureus of Rosenbach is concerned in the production of the majority of cutaneous suppurative diseases—as carbuncles, furuncles, and many cases of acne, especially where necrosis of tissue occurs, and in suppurative folliculitis. It is also the special cause of Bockhardt's impetigo.

3. A coccus producing grayish-white cultures, which he designates as the staphylococcus cutis communis. This coccus is found in great numbers upon the skin, and must be considered as the cause of the mildly inflammatory affections accompanied by desquamation, such as are typified by pityriasis capitis, seborrhea corporis, the circinate seborrheic dermatitis of English writers, and is identical with the coccus described by Unna as his *morococcus*, claimed to be the specific cause of all forms of eczema. That this organism is the cause of eczema is considered by Dr. Sabourand an untenable thesis, its main property being the power to produce desquamation of the upper epithelial layers of the skin, which is

its characteristic pathogenic effect. The essayist considers the flask or bottle bacillus of Unna, which is so prevalent in all seborrheic conditions, as probably a degenerate or involuntary form of the staphylococcus cutis communis.

In his concluding remarks Dr. Sabourand made a guarded reference to the relationship between this coccus and the staphylococcus pyogenes albus, emphasizing the extreme degree of variation in virulence and in cultural characteristics existing in this group of organisms.

Roentgen Rays in the Treatment of Diseases of the Skin.—(W. A. Pusey, *J. A. M. A.*, September 28, 1901.)—An analysis of clinical reports and of the reports of microscopical studies of tissues affected by X-rays indicates broadly that this method of treatment may be of use in the following conditions: (1) In conditions where it is desired to produce an atrophy or partial atrophy of some appendages of the skin, as in hypertrichosis. (2) In mycotic diseases, such as tinea tonsurans, favus and sycosis. (3) In chronic inflammatory affections, such as indurated patches of eczema and lupus erythematosus, where the purpose is to stimulate the tissues and cause absorption of inflammatory products. (4) In certain specific affections, such as lupus and epithelioma, where the purpose is to cause the destruction of tissues of low vitality. The author believes that the effects of the X-rays are due to the peculiar stimulation of the tissues which they cause, and not to any strong bactericidal effects in the rays themselves. The essential factor is something in the rays themselves, and not, as has been suggested, to some incident of their production, like ozone, or brush discharges, or induced electrical currents in the tissues or parts of platinum carried off from the auticathod. Some excellent photographs accompany the article of a case of lupus and one of epithelioma treated by the rays, which show encouraging results.

Mosquitoes and Leprosy.—(*N. Y. Med. Jour.*)—At a recent meeting of the French Academy of Medicine (*Gazette hebdomadaire de médecine et de chirurgie*, August 4th) M. Blanchard suggested that mosquitoes might possibly convey leprosy, whereupon M. Chantemesse made the remarkable statement that, as a matter of fact, observations seemed to prove that transmission of leprosy always took place during the night. It might have been well to give the foundation for such an astounding remark.

On Streptothrichal Infections.—(J. H. Musser, *Phil. Med. Jour.*, September 7, 1901.)—After reviewing the literature of the subject, which is very interesting from a dermatological standpoint, the author arrives at the following conclusions:

1. That the streptothrix in some varieties is pathogenic to man, and gives rise to inflammatory, suppurative and necrotic lesions in (a) the

lungs, (*b*) skin and (*c*) by metastasis, probably, in the brain and spinal cord, and rarely other organs (the kidney).

2. That while this pathogenicity is more than likely, and is primary, yet it must be remembered it may be a secondary growth in the course of other infections.

Treatment of Tuberculosis with Urea.—(A. H. Buch, F. R. C. S., *Phil. Med. Jour.*, September 14, 1901.)—The idea of this treatment is founded upon the fact that gouty or rheumatic persons are particularly immune to tubercle; therefore, urea is given to increase the amount of uric acid or urea in the systems of the tuberculous. The author reports three cases of lupus and two of scrofuloderma cured by its internal administration without active local treatment. From twenty grains to a drachm of the agent is given three times a day. The author believes that this discovery will revolutionize the treatment of tuberculosis.

Dr. Buch is not the originator of the idea, but Dr. Harper, of Nottingham, to whom he gives full credit.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF WILLIAM E. SAUER, M. D.

Treatment of Acute Suppuration of the Middle Ear.—(E. Bochner, *Archiv fuer Ohrenheilkunde*, June 20, 1901.)—The author recommends the so-called dry treatment as being the best method.

In all acute suppurations the patient is put to bed, given a sweat bath and a brisk cathartic. The canal is thoroughly wiped out by means of absorbent cotton on an applicator, and a strip of sterilized gauze is carried to the bottom of the external auditory canal, which is not to be packed in too tightly. Over this is placed a dressing of gauze and absorbent cotton and held in place by bandage. If the discharge is very profuse the dressing should be changed every twelve hours, but if not so profuse once in twenty-four hours will suffice. The advantages claimed are: The patient can be kept at rest; a regular and constant drainage; the freedom from any dangerous nostra being introduced into the ear by the patient.

Tracheal Injections.—(J. A. Thompson, *Cin. Lancet-Clinic*, No. 9, 1901.)—The author reports two interesting cases treated by tracheal injections.

One an advanced case of pulmonary tuberculosis, with such severe paroxysms of coughing that the patient vomited all her meals and got very little sleep. She was failing rapidly and her death was apparently only a matter of weeks. All internal medication had failed to control the symptoms. She was put on a course of injections of menthol, camphor and guaiacol, given daily. The first injection relieved the cough for eight

hours. Her general condition improved rapidly, and all unfavorable symptoms disappeared.

With occasional relapses the patient lived for nine years, but finally succumbed to the disease.

The other case was one with gummatous deposits in the lungs, which had broken down and were producing a very large amount of offensive discharge. The history of syphilis extended back several years. The patient had been under the constant care of physicians for four years, but internal medication had failed to relieve her symptoms. She had lost fifty pounds, had an evening temperature of 104° , and her condition indicated speedy dissolution. The daily injections of menthol, camphor and guaiacol were given, and after six weeks the cough and expectoration had ceased. In three months the patient was restored to her former weight and strength.

The injection method was also used in cases of acute bronchitis after free expectoration had begun, thereby cutting short the duration by one-half. Especially good results were obtained in the treatment of chronic bronchitis as well.

The technique used is as follows: The larynx is illuminated in the ordinary way. The patient holds his own tongue while the physician guides the tip of a properly curved laryngeal syringe back over the glottis. Then, while the patient takes a slow, full inspiration, the medicine is injected between the chords into the trachea. If the patient follows the directions as to the method of breathing, the injections are easily given. In only a few cases did the author find it impossible to give the injections. Usually the amount of coughing and strangulation produced is slight.

The most effective medicines used by the author are menthol, camphor, creosote and guaiacol carbonate, and chlorophenol dissolved in one of the light petroleum oils or in olive oil. Two per cent. solutions of menthol and camphor, either singly or combined, were used without pain or irritation.

The carbonates of creosote or guaiacol are painful if used stronger than in one per cent. solutions.

Two to four drachms may be employed for each injection.

The advantages claimed for this method are:

The direct local action of the remedy.

The medicines reach the diseased area unchanged by chemical action in their passage through the digestive organs and the blood.

They do not unfavorably affect digestion and nutrition.

OPHTHALMOLOGY.

IN CHARGE OF JOHN GREEN, JR., M. D.

Three Operations of Cataract Extraction in Septic Conditions.—(Freeland Fergus, *Ophthalmic Review*, September, 1901.)—CASE I.—Elderly female in fairly good general health. Left eye, mature cataract with active pupil and good projection. Bacteriological examination of conjunctival sack showed B. Xerosis. No pyogenic organisms. Left nostril contained a large polypus apparently free from discharge.

Operation (upper section with iridectomy) was normal. The following day pus was seen coming from the left nostril; nasal discharge continued four days, diminishing under mild antiseptic syringing. In the meantime the condition of the eye was in every respect satisfactory. A sharp rigor occurred on the fifth day—later the patient complained of pain in the head. Pus ceased coming from the nose. Temperature 99° F. Symptoms of septicemia became more and more manifest, and the patient succumbed fourteen days after the operation. The corneal wound had healed throughout.

At the autopsy the left nasal fossa was opened from above: a spherical polypus with long thin pedicle was found to "block the nasal fossa about the level of the middle meatus." The sphenoidal sinus contained pus, and the superior and middle turbinates were bare and eroded. It is supposed that pus accumulated in the upper portion of the nasal fossa behind the obstructing polypus.

CASE II.—Female, middle aged. Mature senile cataract complicated by chronic dacryocystitis. Preliminary removal of the lachrymal sack was performed. The conjunctival sack was irrigated several times a day for three weeks, when pyogenic organisms could no longer be found. Extraction with iridectomy was followed by uncomplicated healing and good vision.

CASE III.—Male, age 74. Mature cataract of left eye. Pyogenic organisms found in conjunctival sacks. Pus coming from the left nostril was found to originate in the antrum. Evacuation through perforation of the alveolar border was followed by frequent irrigation with sterile water for two weeks; lavage applied also to conjunctiva. Bacteriological examination at end of this period showed conjunctiva free from pus organisms. Extraction with iridectomy gave excellent vision.

Fergus concludes that (1) bacteriological examination should be made before operation, (2) the condition of the cavities in the neighborhood of the orbit should be thoroughly investigated.

Spontaneous Resorption of a Cataractous Lens.—(Trousseau, *Annales d'Oculistique*, March, 1901.)—The lenticular opacity developed four months

after a successful iridectomy for acute glaucoma. A month later V. was reduced to light perception, but projection remained good. Extraction was deferred on account of ill health. Four months later V. began to improve. Examination showed that the upper half of the pupil was clear, the lower half still occupied with lens masses, with + 12. D. sph. $V = \frac{1}{3}$. Resorption continued, the pupil became wholly clear, and with + 12. sph. $V = \frac{2}{3}$. A delicate membrane occupied the lower one-fourth of the pupil. Glaucomatous phenomena did not reappear.

Trousseau believes that resorption is especially frequent in cataracts occurring in glaucomatous eyes.

The Eye Complications in a Case of Ankylostomiasis.—(Howard F. Hansell, Philadelphia, *Am. Med.*, September 14, 1901.)—Hansell examined the eyes of Allyn's patient (history in full in *Am. Med.*, July 13, 1901) and found the following conditions: Scleræ white and bloodless, conjunctivæ transparent, media clear, fundus reflex *light pink* (patient was a pronounced brunette), papillæ edematous, retinæ around disks infiltrated with serum.

Right eye. Two small linear extravasations to lower nasal side of papilla.

Left eye. Round hemorrhage near fovea. A few "flame-like" extravasations.

Retinal arteries showed no anatomic change, but "looked like transparent lines." Veins tortuous, darker than arteries, but lighter than normal. Venous current could be seen.

BOOK REVIEWS.

A Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M. D., Ph. D., LL. D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Fifth edition, thoroughly revised. One handsome octavo volume of 1297 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$5.50, net.

The present (fifth) edition of this text-book has been brought thoroughly abreast of the progress of the past year in medicine. The most thorough revision has been made in the section on infectious diseases, particularly in the articles on typhoid fever, cerebro-spinal meningitis, lobar pneumonia, chronic tuberculosis, and variola. The article on malaria contains a brief but complete exposition of the life-history of the malarial plasmodium and the steps which led to its discovery. In the article on yellow fever scant space is allotted to the eminently well-devised, conclusive and epoch-making experiments of Reed and his associates. New paragraphs have been inserted under these respective subjects: fatty infiltration of the heart, streptococcus pneumonia, and acute diffuse interstitial nephritis.

Essentials of the Diseases of Children. Saunders' Question Compend Series. By WILLIAM M. POWELL, M. D. Third edition. Thoroughly revised by ALFRED HAND, JR., M. D., Dispensary Physician and Pathologist to the Children's Hospital, Philadelphia. 12mo, 259 pages. Philadelphia and London: W. B. Saunders & Company. Price, \$1.00, net.

In this revised edition numerous additions and changes have been made in the book, so that it continues to represent the present state of pediatrics. The section on Infectious Diseases has been rewritten, as well as many of the paragraphs on Pathology. A number of new chapters have been added, among others, one on Infant Feeding.

It is difficult to find any use of such a condensed work other than as a rapid means of reviewing a subject prior to an examination. The general practitioner may find it useful, on account of its small size, but as a guide to pediatric practice it is hardly to be recommended, even to the student.

Journal of Medical Research. Continuation of Journal of the Boston Society of Medical Sciences, Vol. vi., No. 1, whole number 62, 300 pp. Price, \$2.50.

The Journal of the Boston Society of Medical Sciences has been continued under the name of the *Journal of Medical Research*. The first number, issued July 1, 1901, contains papers read before the first meeting of the American Association of Pathologists and Bacteriologists held in Bos-

ton, April 5 and 6, 1901. The number is a most substantial indication of the high scientific attainments of the members. Each paper represents original research, and all are worthy of unstinted praise.

The journal is edited by Harold N. Ernst, of Harvard University. The initial number contains excellent articles, that by Prof. Warthin, of the University of Michigan, on Hemolymph Glands, being exceptionally interesting and valuable. Another interesting paper is that on the *Streptococcus Mucosus*, by Howard and Travis, of the Western Reserve University. It classifies several different organisms which have been heretofore described under different names as one species, the *streptococcus mucosus*.

Die Carcinomlitteratur. Eine Zusammenstellung der in- und auslaendischen Krebschriften bis 1900. By DR. ROBERT BEHLA. Published by Richard Schoetz, Berlin, Germany. Price, 6 marks.

This book gives a list of about 5500 different publications on carcinoma. The author includes all papers and books, which deal with etiology, histology, diagnosis, therapy, operations, prognosis, prophylaxis, etc., of cancer, published all over the world up to the year 1900. He furthermore adds the literature on carcinoma of animals and plants, because the aspect of this subject has recently attracted the attention of investigators.

The arrangement of this enormous material is admirably clear. The first part of the register contains the titles in alphabetical order of the authors' names, the second the papers arranged according to their contents. There are two subdivisions: Carcinoma in general, and carcinoma as it manifests itself in different organs.

The idea of the author, who started this work in 1875, was to give the carcinoma investigator a synopsis of the whole material in existence. This compilation is undoubtedly the most complete ever published.

In a short but significant preface Behla gives a review of the history and of the modern attitude in the cancer question, which to-day occupies the very center of medical interest.

Syphilis: Its Diagnosis and Treatment. By WILLIAM S. GOTTHEIL, M. D., Professor of Dermatology and Syphilology, New York School of Clinical Medicine; Dermatologist to the Lebanon and Beth-Israel Hospitals, the West-Side German Dispensary, etc. Profusely illustrated. Pages, 216. Price, \$1.00, net. G. P. Engelhard & Company, Chicago. 1901.

The author, in this well-illustrated book, which is written in a pleasing style, presents the subject concisely and pointedly. There is so much to be said upon syphilis that it is difficult to do the subject justice in so few pages. While preference is given to the hypodermic method of treatment, and the reasons therefor are clearly explained, the other modes of medication are not neglected. The mild type of the disease in communities where it has existed for centuries is accounted for on the theory of immunity. The book is well arranged and printed.